Expanded Site Inspection
Final Report

Alco Steel Services
Joliet, Illinois
ILD 025 552 522

July 1997

Prepared for:
U.S. Environmental Protection Agency
under Alternative Remedial Contracting Strategy (ARCS)
Contract 68-W8-0064, Work Assignment 33-5JZZ
ARCS Contractor Project 71280.122

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1.0 Introduction

On February 4, 1993, the Alternative Remedial Contracting Strategy (ARCS) contractor was authorized by the U.S. Environmental Protection Agency (USEPA) Region V to conduct an expanded site inspection (ESI) of the Alco Steel Service site in Will County, Illinois.

The site was initially placed on the Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) on September 1, 1980, as a result of a request for discovery action initiated by USEPA.

The site received its initial Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) evaluation in the form of a preliminary assessment report completed by the Illinois Environmental Protection Agency (IEPA) on March 29, 1985. A CERCLA screening site inspection report was completed for the site on October 17, 1991, by USEPA's field investigation team (FIT). The sampling portion of the ESI was conducted on September 21, 1994, when the ARCS Contractor field team collected five residential well samples and eleven surface soil samples.

The purposes of the ESI have been stated by USEPA in a directive outlining site inspections performed under CERCLA. The directive states:

> The objective of the expanded site inspection (SI) is to provide documentation for the Hazard Ranking System (HRS) package to support National Priorities List (NPL) rulemaking. Remaining HRS information requirements are addressed and site hypotheses not completely supported during previous investigations are evaluated. Expanded SI sampling is designed to satisfy HRS data requirements by documenting observed releases, observed contamination, and levels of actual contamination at targets. In addition, investigators collect remaining non-sampling information. Sampling during the expanded SI includes background and quality assurance/quality control samples to fully document releases and attribute them to the site. Following the expanded SI, USEPA site assessment managers assign the site a priority for HRS package preparation and proposal to the NPL.

USEPA Region V requested identification of sites during the ESI that may require removal actions to remediate an immediate threat to human health or the environment. No emergency removal actions were identified or required as part of this ESI.

2.0 Site Background

2.1 Introduction

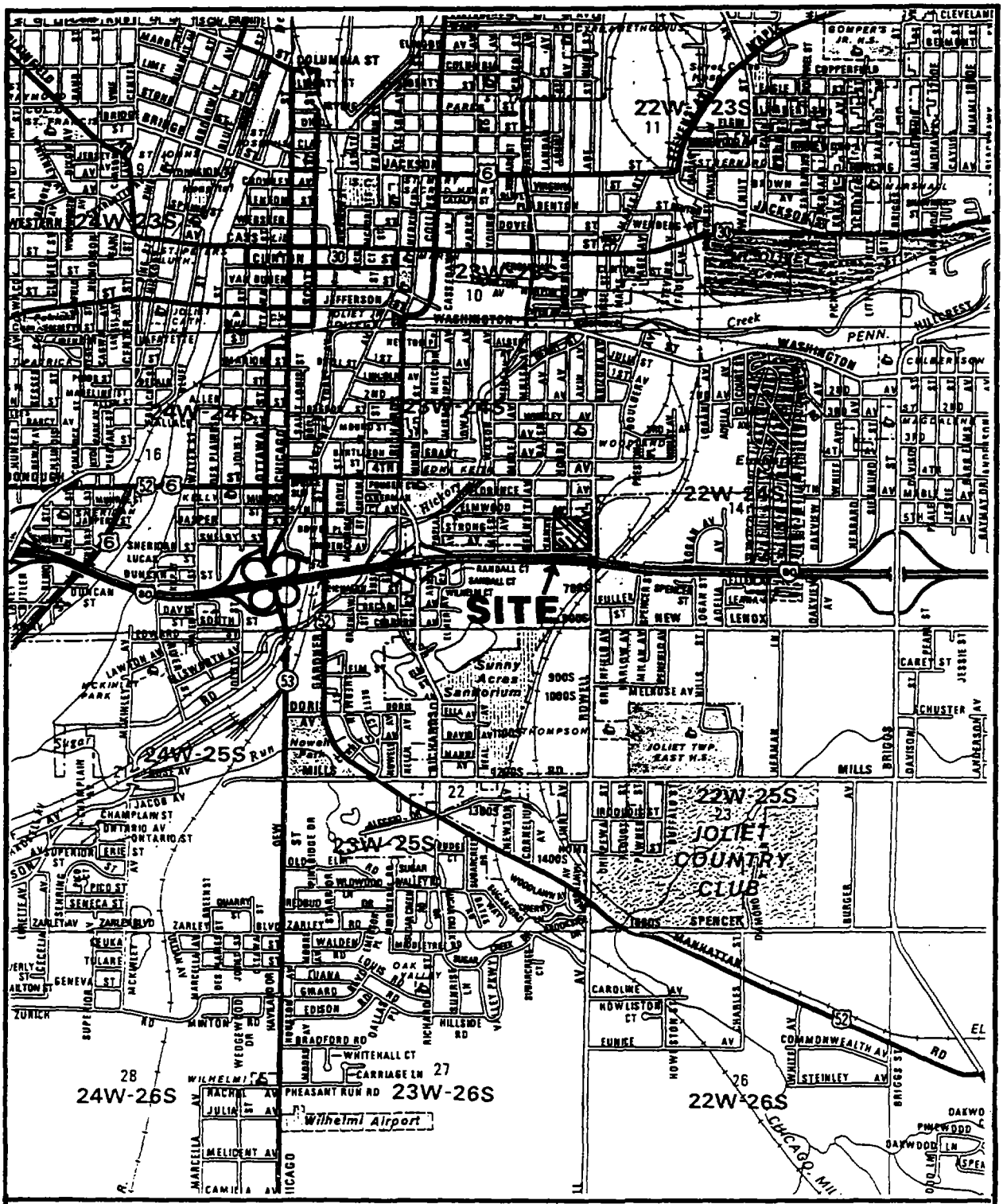
This section includes information obtained during the ESI, and information from reports of previous site activities.

2.2 Site Description

The Alco Steel Service (Alco) site is an inactive facility located at 525 Rowell Avenue in Joliet Township, Will County, Illinois (the northeast quarter of the southeast quarter of Section 15, Township 35 North, Range 10 East of the Third Principal Meridian (U.S. Geological Survey [USGS] 1973). Figure 2-1 is a site location map. Figure 2-2 is a site layout map.

The approximately 8-acre site is located primarily in a suburban area. The site is bordered by Joliet Concrete Products Inc. and residences along Elmwood Avenue on the north; residences along Lehman Street on the west; Linden Avenue on the south, beyond which is Interstate 80; and Rowell Avenue on the east, beyond which is a water-filled quarry. Access to the Alco site is through gated entrances on Linden Street and Rowell Avenue (ARCS V Contractor 1994). Surrounding land uses within 0.25 mile of the site include light industrial to the north, residential to the west and north, and quarries to the south and east. General land use within 4 miles of the site is primarily residential to the north and west and rural to the south and east.

The site is generally flat. Six structures remain on the site: three storage buildings, one shed, and two trailers. The residence formerly on the east side of the property is no longer present. The United Wire (UW) incinerator is still onsite, but it has not operated since 1988. Cranes and other heavy equipment formerly used in the scrap metal processing operation were parked along the western side of the property. The scrap metal piles identified in previous reports as containing cast iron, brass, iron, insulated and rubber coated wire, and other metal based products, were sold to area businesses and removed from the site. Small scrap remnants were randomly spread across the site. The ground surface has been graded. The site has no runoff control (ARCS V Contractor 1994). Appendix A includes the 4-mile radius map of the site.



Source:
Joliet-North Will County Map
Rand McNally, 1994

Scale
1 inch = 1/2 mile

N

Figure 2-1
Site Location Map

Alco Steel Service
Joliet, Illinois

Name: FRE 00067
Date: 04/28/94

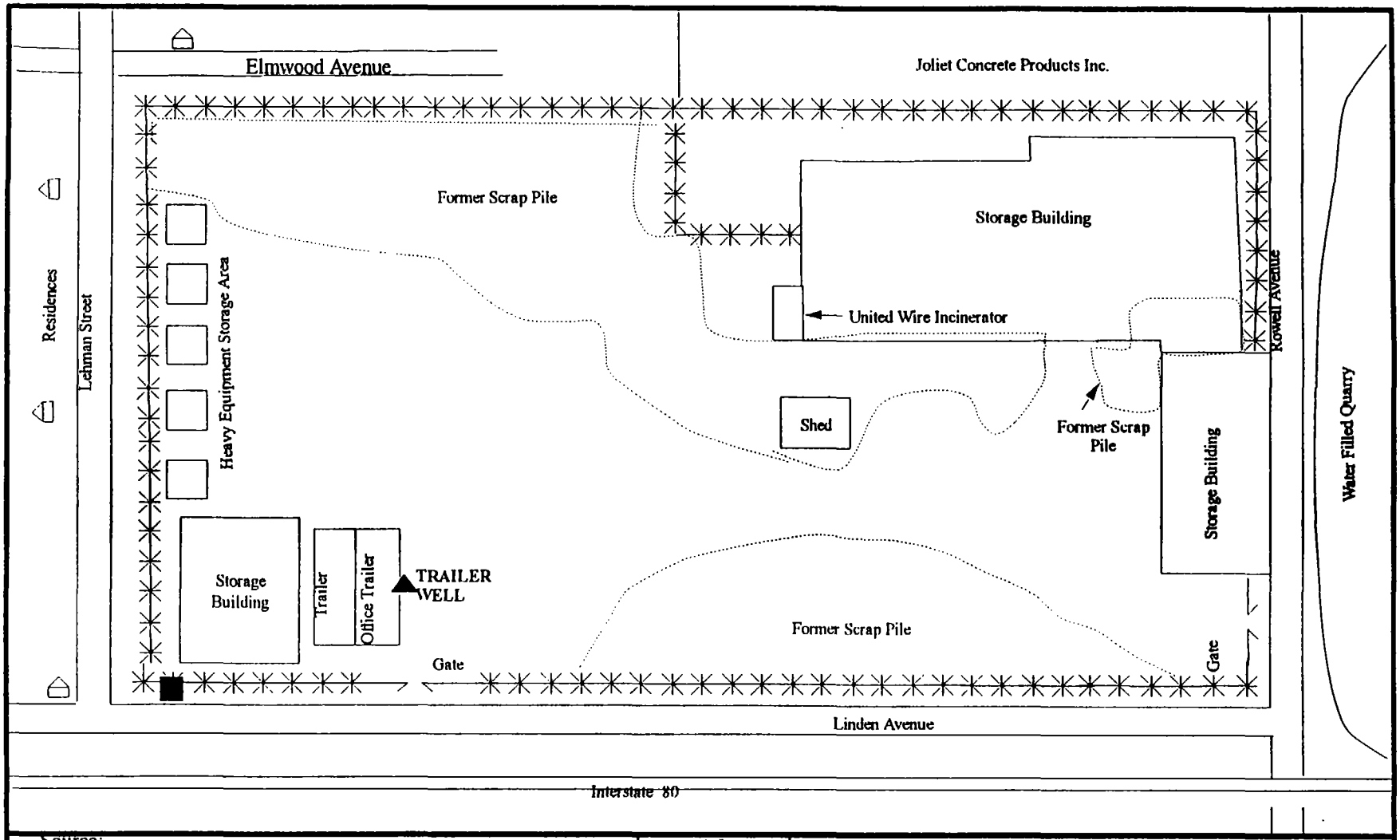


Figure 2-2
Site Layout

Alco Steel Service
Joliet, Illinois

FRE00071
7.12.94

2.3 Site History

2.3.1 Operational History

Before 1944, McKeand Auto Wrecking and Scrap owned the property and operated on it. It is unknown exactly when the site first operated as an auto wrecking and scrap yard. In 1944, Mr. Albert Cohn purchased the site from McKeand Auto Wrecking. Mr. Cohn owned and operated a scrap metal processing facility at the site until his death in 1993. His wife now owns the Alco site. Ferrous and nonferrous material, such as cast iron, brass, iron and steel, were processed at the Alco site. Processing of insulated copper wire and cable through mechanical stripping and occasional incineration were also done at the site. In March 1970, Alco received a permit to install a Brulle multiple chamber incinerator. The incinerator was used a few days as a demonstration model to determine its effectiveness. Alco also built and operated an unpermitted single chamber incinerator onsite designed to wash material. By 1972, the incinerators were no longer used, and both were removed from the site (IEPA 1985, FIT 1991).

In November 1991, IEPA issued Alco a permit to install a UW incinerator. No operating permit was issued for the UW incinerator at that time. File records indicate that the UW incinerator was used to incinerate insulated wire efficiently by burning off the insulation so that the wire could later be resold. The UW incinerator operated seasonally, only a few hours a day. According to IEPA records, the UW incinerator operated approximately 120 hours in 1983. During the early 1980s, the UW incinerator was only used on occasion, and no longer burned copper wire. The UW incinerator ceased operating in 1988 (FIT 1987 and 1991).

2.3.2 Summary of Onsite Environmental Work

No records from 1944 to 1970 were found regarding environmental problems at the Alco site. In September 1970, IEPA observed open burning of refuse at the Alco site. File information indicates that no regulatory agency action was taken. During a routine site inspection in March 1972, IEPA discovered that Alco was operating the UW incinerator without an operating permit. Alco received an operating permit for the UW incinerator in September 1973. During a routine site inspection in January 1984, IEPA cited Alco because emissions from the UW incinerator violated IEPA's Air Pollution Control regulations. Alco's response to the violation notice indicated that the emissions problem was caused by an operator who had flooded the furnace with oil, thereby causing the emissions. The response also

oil, thereby causing the emissions. The response also indicated that the operator had since been instructed how to avoid flooding the furnace. No records of other violations occurring at the site have been found, and IEPA has not been involved at the site since 1987 (FIT 1991).

In July 1990, the USEPA FIT collected five surface soil samples, including one background sample, and three residential well samples. No samples were available to establish background conditions for residential well samples. Analytical results for soil samples indicated elevated concentrations of 12 semivolatile organic compounds, 1 polychlorinated biphenyl (PCB), 17 inorganics, and 14 polychlorinated dibenzo-p-dioxins (dioxins) and polychlorinated dibenzofurans (furans) (FIT 1991).

2.4 Applicability of Other Statutes

The Alco Steel Services site was first listed on the CERCLIS site/event list for Illinois on September 1, 1980, under identification number ILD025552522 (USEPA 1995). The site is not listed on the Resource Conservation and Recovery Act notifiers list (USEPA 1994).

3.0 Site Inspection Activities and Analytical Results

3.1 Introduction

This section outlines the procedures used and observations made during the ESI conducted at the Alco site. Sampling activities were conducted in accordance with the quality assurance project plan (QAPjP) (ARCS Contractor 1991).

ESI samples were analyzed for volatile organics, semivolatile organics, pesticides/PCBs, and dioxins/furans contained on the USEPA Target Compound List (TCL) and Target Analyte List (TAL) by USEPA Contract Laboratory Program (CLP) participant laboratories. Appendix B presents the TCL, TAL, and dioxin/furan list. Appendix C summarizes analytical data generated by ESI sampling. Appendix D contains photographs of the site and sample locations.

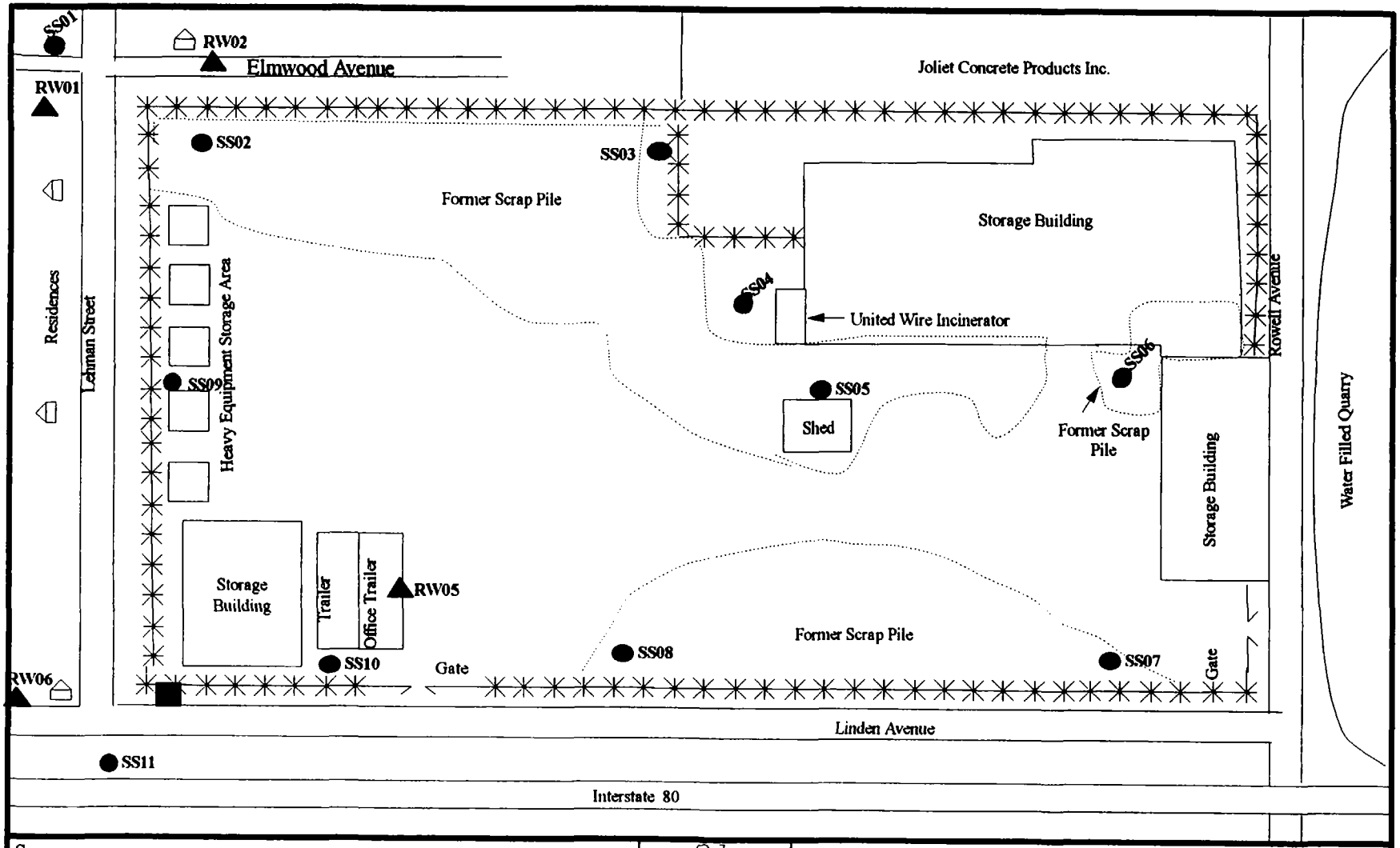
3.2 Site Reconnaissance

On April 18, 1994, a reconnaissance of the Alco site was conducted. This visit included a visual site inspection and an interview with Mr. James Babcock and Mr. John Parker, attorneys for Alco Steel Service. Discussions included site status and facility activities, health and safety concerns, and potential sampling locations. Mr. Babcock and Mr. Parker revealed the site owner, Mr. Albert Cohn, died in November 1993. The remaining scrap piles had been removed and sold (ARCS V Contractor 1994). The reconnaissance team explained the purpose of the ESI to the site representatives, toured the site, and gathered site-specific information.

3.3 Sampling Activities

The ESI field team collected five residential well samples and eleven soil samples on September 21, 1994. Split samples were not collected by the site representative. Figures 3-1 and 3-2 show sample locations. Table 3-1 summarizes sample descriptions and locations. Sample activities were conducted in accordance with procedures set forth in the QAPjP. Sample jars were sealed, labeled, packaged, and transported to USEPA CLP participant laboratories. Table 3-2 presents laboratory information according to media sampled and analyses performed.

Reusable sampling and personal protective equipment (PPE) were decontaminated before transport offsite. Disposable sampling equipment and PPE were discarded in accordance with procedures outlined in the ESI project work plan and the QAPjP.



Source:
Modified from Ecology & Environment. 1991

Not to Scale

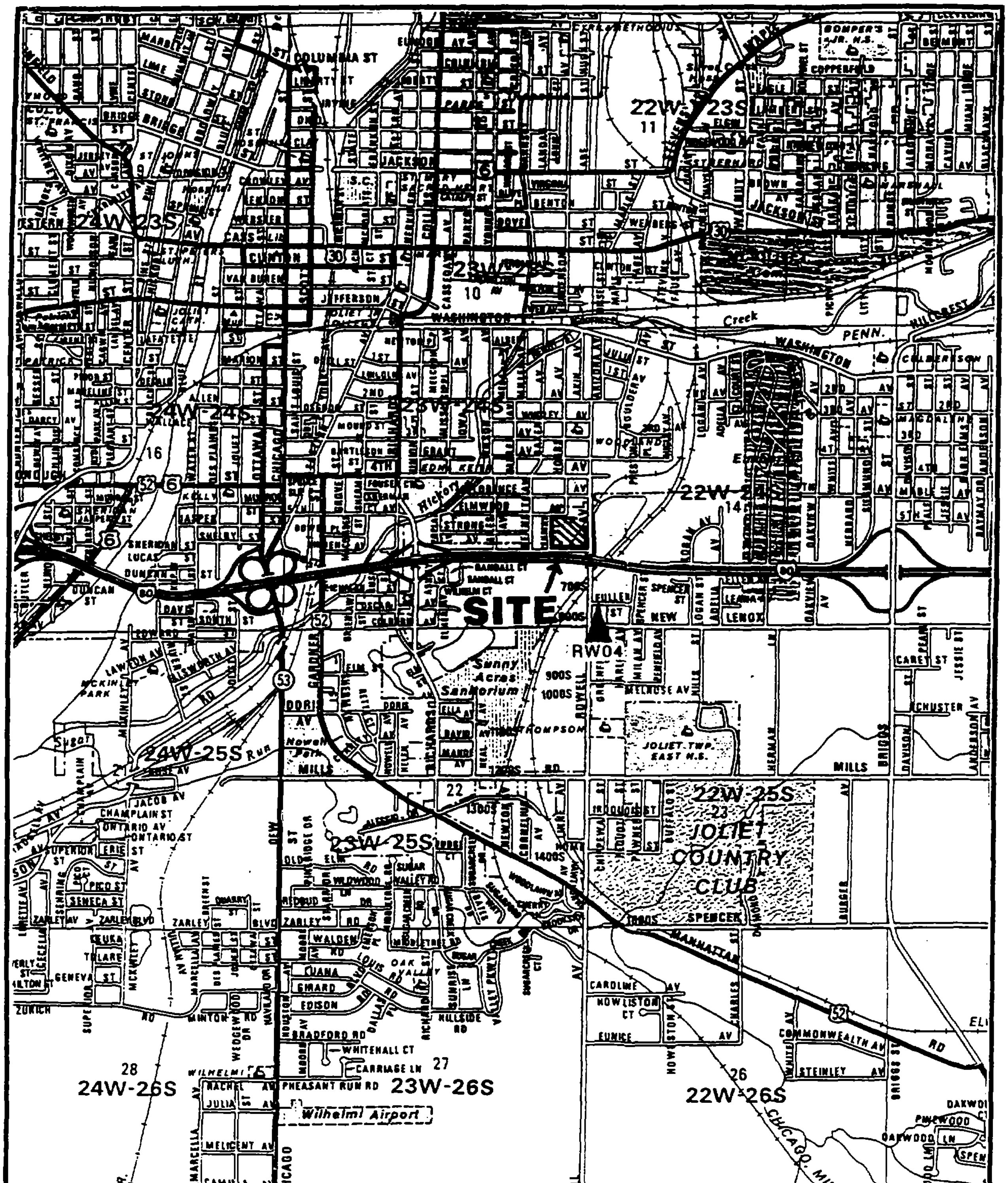
Fence
Former Scrap Piles
Residences
Gate
Storm Drain
Surface Soil (SS) Sample
Residential Well (RW) Sample

N

Figure 3-1
Onsite Sample Locations

Alco Steel Service
Joliet, Illinois

FRE0372
7.12.94



Source:
Joliet-North Will County Map
Rand McNally, 1994

Scale l 1 inch = 1/2 mile

▲ Residential Well (RW) Sample

N

Figure 3-2
Offsite Sample Location

Alco Steel Service
Joliet, Illinois

Name: FRE 00069
Date: 04/28/94

Table 3-1
Sample Descriptions
Alco Steel Service

Sample No.*	Depth (inches)**	Appearance	Location
RW01	Unknown	Clear, no odor	Outside spigot of residence on Lehman Street, northwest of site.
RW02	Unknown	Clear, occasional sulfur taste	Outside spigot of residence on Elmwood Avenue, north of site.
RW04	Unknown	Clear, no odor	Outside spigot of residence on Fuller Street, about 1/4 mile southeast of site. Background location.
RW05	Unknown	Clear, no odor	Restroom faucet of onsite office trailer.
RW06	Unknown	Clear, no odor	Outside spigot of residence on Linden Street, southeast of site.
SS01	0-6	Dark brownish-black, fine-grained material	Offsite. Northwest corner of Lehman Street and Elmwood Avenue. Background location.
SS02	6	Dark brown silty sand with traces of gravel	Northwest site corner.
SS03	5-6	Dark brown sandy material with gravel and traces of black ash.	Northern portion of site, near a former scrap pile.
SS04	5-6	Medium brown sandy material with traces of gravel.	In front of United Wire incinerator (west side).
SS05	7-8	Dark grayish black material with traces of gravel and organic substance	North of shed and south of storage building, at the northwest corner.
SS06	0-6	Light gray material with tracers of gravel	Eastern end of site, near a former scrap pile and between two storage buildings.
SS07	4-6	Dry grayish brown material with traces of gravel	Southeast site corner, near Rowell Avenue gate on eastern end of a former scrap pile.
SS08	0-6	Dry grayish brown material overlain by 3 to 5-inch gray stones	Southern end of site, in western portion of a former scrap pile.
SS09	0-6	Grayish black fine grained silty sand	North of the storage building in the southwest corner and east of heavy equipment storage area, near the midpoint of the western site border.
SS10	0-6	Light brown sandy material with traces of gravel	Southwestern end of the site, south of the site trailer.
SS11	0-6	Saturated, dark brown, fine grained silty clay with some gravel	Offsite. Southeast corner of Lehman Street and Linden Street, about 20 feet north of Interstate 80 shoulder.

Notes:

* Sample numbers are made up of four alpha numerics (two letters followed by two numbers). The two letters designate the type of media sampled, and the two numbers designate different sample locations for each media: residential well (RW); and surface soil (SS).

** Depth represents the distance below land surface.

Table 3-2 Laboratory Information		
Media	Analyses	Laboratory
Water	Organic	USEPA Contract Laboratory Chicago, Illinois
	Inorganic	USEPA Contract Laboratory Chicago, Illinois
Soil	Organic	Southwest Labs of Oklahoma Broken Arrow, Oklahoma
	Inorganic	SVL Analytical Inc. Kellogg, Idaho
	Dioxin/Furan (PCDD/PCDF)	Triangle Labs of RTP Durham, North Carolina (Subcontracted by Grace Analytical Labs Berkeley, Illinois)

3.3.1 Residential Well Sampling

Five residential well samples were collected to investigate possible drinking water contamination. Depths of these private wells are unknown, but presumably screened in the Silurian dolomite aquifer. Sample RW01 was collected from an outside spigot of a residence on Lehman Street located northwest of the site. Sample RW02 was collected from an outside spigot of a residence on Elmwood Avenue two blocks north of the site. Sample RW03 could not be collected from the production well in the storage building because the building was locked. Sample RW04 was collected from an outside spigot of a residence on Fuller Street, located about 0.25 mile southeast of the site, and used as the background sample. Sample RW05 was collected from the restroom faucet of the onsite office trailer located in the southwest portion of the site. Sample RW06 was collected from an outside spigot of a residence on Linden Street located southwest of the site.

3.3.2 Soil Sampling

Eleven surface soil samples were collected during the ESI to assess general soil conditions and to identify the release of hazardous substances to onsite surficial soil. Sample SS01 was collected northwest of the site in a residential area to establish background soil conditions. Sample SS11 was collected southwest of the site as a potential background soil sample. Investigative samples SS09 and SS02 through SS10 were collected at various onsite locations (in a clockwise manner from SS09 close to the midpoint of the western site border to SS10 at the southwestern site corner, south of the site trailer).

3.4 Analytical Results

Appendix C presents ESI analytical data for residential well and soil samples. Sections 4.0 and 5.0 discuss analytical results with respect to source characterization and potential impact on migration pathways.

3.5 Key Samples

"Key samples" are those samples that contain sufficient concentrations of substances, in comparison to background concentrations, to document an observed release. Table 3-3 identifies ESI key samples and associated background concentrations.

Table 3-3 Key Sample Summary Alco Steel Services					
Groundwater (in micrograms per liter)					
Metals		Sample Number			
	RW01	RW02	RW04 Background	RW05	RW06
Barium	212		38		

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Table 3-3 (Continued)
Key Sample Summary
Alco Steel Service

Substance	Soil (in micrograms per kilogram)										
	SS01 Background	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11
Phenanthrene	73 J	9400	4200		2300	3800			6800	2600	
Anthracene	350 UJ	2600			1200		740		2700	780	
Fluoranthene	98 J	11000	5400			5800		960	16000		
Pyrene	96 J	12000	5300	2400		4900			12000		
Benzo(a) Anthracene	53 J	4800	2600	1200	9300 D	2400	2200		4700	1400	
Chrysene	91 J	5600	3300	1900	11000 D	4000		1200	10000	2500	
Benzo(b) Fluoranthene	72 J	3900	2400	2200		4900	2200		8900	2400	
Benzo(k) Fluoranthene	59 J	3400	2100				2800				
Benzo(a) Pyrene	65 J	4100	2500			3600	2400		7800		
Indeno(1,2,3-cd) Pyrene	69 J	2500				2100			4000		
Dibenzo(a, h) Anthracene	20 J				1000						
Benzo (g,h,i) Perylene	82 J								3100		
Aroclor 1260	35 UJ							450000 CE			

J - Reported value estimated
U - Compound was analyzed for but not detected.
C - Results were confirmed by gas chromatograph/mass spectrometer (GC/MS).
E - Concentration exceeds calibration range of GC/MS instrument.
D - Compound identified in an analysis at a secondary dilution factor.

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Table 3-3 (Continued)
Key Sample Summary
Alco Steel Service

Substance	Inorganics (in milligrams per kilogram)										
	SS01 Background	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11
Barium	135		1110		643	659		1470			
Cadmium	2.2*		14.2*	11.9*	32.6	57.0*		32.5*			
Calcium	26800	81800				117000	101000			102000	
Chromium	17.2	558	266	551	236	117	64.2	280	102		
Cobalt	9.1 B		67.2		34.8			42.1			
Copper	35.3	203	1940	2460	6890	8020	404	1660	209		
Iron	25300	93400	283000	193000	91000	128000		185000	85700		
Lead	128		692	4080	3540	4170	765	1990			
Magnesium	13800						60100			63000	
Manganese	1310			11900							
Mercury	0.35		8.1	8.4	7.8	14.2		4.7			
Nickel	23.9	87.4	247	191	217	437		245	3100		
Selenium	.86 JB		80.5 S								
Silver	1.3 B		12.1	9.7	8.1	9.1		9.7			
Thallium	0.28 B		9.7 JBW								
Zinc	199		2930	1610	4920	3240	957	5070	1090		
Cyanide	0.55 U		10	2.6	4.7	3.6	1.2	4.4	1.1		

U - The material was analyzed for but not detected.
J - Reported value is estimated.
S - Reported value was determined by the Method of Standard Additions.
* - Duplicate analysis was not within control limits.
B - Analyte found in associated blank as well as in sample.
W - Post digestion spike for furnace AA

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Table 3-3 (Continued)
Key Sample Summary
Alco Steel Service

Substance	Dioxins/Furans (in micrograms per kilogram)										
	SS01 Background	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11
2378-TCDF	0.0073 U		0.0736 J					0.867 X			
12378-PeCDD	0.02 U				0.0276 X						
123478-HxCDF	0.013 U	0.04 X						8.5B	0.0844 X		
123678-HxCDF	0.008 U					0.177 X		1.21 X			
123478-HxCDD	0.022 U			0.0629 X			0.049 X	1.22 J			
123678-HxCDD	0.024 U							3.51 X			
123789-HxCDD	0.018 U				0.185 X			3.71 B			
234678-HxCDF	0.011 U		0.0688 X	0.204 X	0.536 X	0.239 X	0.122 X				0.0141 X
123789-HxCDF	0.012 U				0.0752 X			0.846 X			
1234678-HpCDF	0.145 X				2.59			5.4			
1234678-HpCDD	0.13 UJB				5.87 B			16 EJB			
1234789-HpCDF	0.017 U		0.0514 X	0.26 X	0.329 J		0.08 X	3.27			
OCDD	0.734 J		9.01	8.73	49.80	10.6	6.86	797 EJ	14.3		
OCDF	0.188 UJB							15.3 B			

J - Reported value estimated
U - Compound was analyzed for but not detected.
X - Additional flags defined separately.
E - Concentration exceed calibration range of GC/MS instrument.
B - Analyte found in associated blank as well as in sample.

71280\122\3-3diox.wk4

4.0 Characterization of Sources

4.1 Introduction

Analysis of ESI samples led to the identification of one source, contaminated soil, at the Alco site.

4.2 Contaminated Soil

4.2.1 Description

Analytical results of nine onsite soil samples collected during the ESI confirm and document observed contamination to onsite surficial soils. Investigative soil samples SS02 through SS08 were collected from areas onsite that were previously identified as former scrap metal piles. Samples SS09 and SS10 were collected from onsite soils to assess contaminant migration from historical incineration activities at the site. The exact area of observed surficial soil contamination encompassed by the nine onsite key sample locations (SS02 through SS10) is estimated to be about 5 acres or 217,800 square feet.

4.2.2 Waste Characteristics

The quantities of scrap metal and associated constituents incinerated at the Alco site are unknown. Analysis of the 1994 ESI soil samples collected onsite revealed the presence of anthracene, fluoranthene, pyrene, phenanthrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, Aroclor 1260, barium, cadmium, calcium, copper, chromium, cobalt, cyanide, iron, lead, magnesium, manganese, mercury, nickel, selenium, silver, thallium, zinc, and 14 dioxins and furans at elevated concentrations above background.

5.0 Discussion of Migration Pathways

5.1 Introduction

This section includes information useful in analyzing the potential impact of contaminants found at the Alco site on the four migration pathways: groundwater, surface water, air, and soil.

5.2 Groundwater

Five residential well samples were collected during the ESI. Barium is the only constituent detected (in sample RW01) at elevated concentrations that can be attributed to site contaminants.

Site area geology includes three major water-bearing units (in descending order): a sand and gravel Quaternary drift deposit, a Silurian dolomite bedrock formation, and the Cambrian-Ordovician aquifer system, which is a sequence of hydraulically connected Ordovician and Cambrian age dolomite and sandstone formations (Woller and Sanderson 1983, Lineback 1979, Willman and Others 1967).

According to area well logs, the Quaternary drift aquifer and Silurian dolomite bedrock aquifer appear to be hydraulically connected and together form the aquifer of concern (AOC). The Maquoketa Shale Formation, a known aquitard, is between the AOC and the lower Cambrian Ordovician aquifer system (Woller and Sanderson 1983). The Quaternary drift deposit ranges in thickness from 5 to 100 feet, and is composed of generally well sorted, well bedded sand and gravels near the site and interbedded clay till units with sand and gravel lenses further away from the site (Woller and Sanderson 1983, Lineback 1979). The Silurian dolomite bedrock formation varies in thickness from 100 to 150 feet in the area and is described as almost entirely dolomite that varies from extremely argillaceous, silty, and cherty to exceptionally pure (Lineback 1979). The Cambrian-Ordovician aquifer system ranges in depth from 500 to 2,000 feet below ground surface (Woller and Sanderson 1983). The direction of groundwater flow beneath the site is unknown, but is assumed to be in a westerly direction, toward the Des Plaines River.

Potable water within 4 miles of the site is obtained from public and private wells. Municipal water is served by the City of Joliet, City of Rockdale, Southeast Joliet, Cresthill, Ridgewood, Scribner Street, and Clearview subdivisions, Modern and Woodcreek Mobile Home Parks, Oakview Avenue Waterworks, Shawnita Tract Water Association, Park Road Water Association, and Joliet Correctional Center.

The City of Joliet operates 15 wells from a blended system that draw water from the Silurian dolomite aquifer and Cambrian-Ordovician aquifer system and serves about 78,000 people. Five City of Joliet wells are located within 4 miles of the site and serve about 26,000 people. The City of Rockdale operates two municipal wells located within 4 miles of the site. One well draws water from the Silurian dolomite aquifer system; the other from the Cambrian-Ordovician aquifer system and serves an estimated 1,709 people. Fourteen other public wells are within 4 miles of the site and serve about 9,968 people.

About 1,900 private wells are within 4 miles of the site. These wells are assumed to be screened in the AOC and serve an estimated 5,149 people. Table 5-1 summarizes the approximate drinking water population from public and private wells within 4 miles of the site (USGS 1973, 1990, 1993; IEPA 1992, Illinois State Water Survey 1995).

5.3 Surface Water

The site is relatively flat and runoff generally flows southeast, across the site. The site is located outside the 500-year floodplain (Federal Emergency Management Agency 1982). Hickory Creek, the nearest surface water body, is about a half mile west of the site. No overland flow migration pathway exists from the site to Hickory Creek because the intervening terrain includes developed roads and storm sewers (ARCS V Contractor 1994, USGS 1973). Therefore, no surface water intakes or sensitive environments were considered because no 15-mile surface water migration pathway exists.

5.4 Air

No documented releases to the air pathway have been attributed to the site. During ESI field activities, no air sampling was conducted. Air monitoring with a photoionization detector during sampling showed no readings above background.

An estimated 75,423 people live within 4 miles of the site (U.S. Department of Commerce (USDOC) 1990; USGS 1973, 1990, 1993). Sensitive environments located within 4 miles of the site may be affected by particulate migration of hazardous substances from the site. Four Illinois Natural Areas, Markgraf Quarry, Pilcher Park, Hickory Creek Sedge Meadow, and Plaines Station Geological Area have been identified within the 4-mile target distance limit. Pilcher Park is the habitat for one Illinois endangered bird, *Accipiter cooperii*, Cooper's hawk; one Illinois threatened

Table 5-1 Drinking Well Users Within 4 Miles of Alco Steel Service Site		
Radial Distance from Site (in miles)	Approximate Population by Aquifer	
	Silurian Dolomite	Cambrian Ordovician
0 to 1/4	377	0
1/4 to 1/2	301	0
1/2 to 1	903	0
1 to 2	4,916	15,600
2 to 3	1,173	8,054
3 to 4	6,302	5,200
Total Population	13,972	28,854

bird, *Catharus fuscescens*, veery; and one Illinois endangered plant, *Carex woodii*, pretty sedge (USGS 1973, 1990, 1993; Illinois Department of Conservation 1993, 1995). About 471 acres of wetland areas are located within 4 miles of the site (U.S. Department of Interior 1981, 1983, 1987).

5.5 Soil

Eleven surface soil samples were collected during the ESI. Analytical results for the key soil samples revealed the presence of 12 semivolatile organic compounds; 1 PCB; 14 dioxins and furans; and 17 inorganic analytes at elevated concentrations. The site is fenced and has no recreational use. Several residences are located immediately west of the site on Lehman Street. No schools, daycare facilities, or residences are located within 200 feet of the observed contamination (ARCS V Contractor 1994). An estimated 7,497 people reside within 1 mile of the site (USDOC 1990, USGS 1973).

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Appendix A

Alco Steel Service

4-Mile Radius Map

SDMS US EPA Region V

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Appendix A – Site 4-Mile Radius Map

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Appendix B

Alco Steel Service

Target Compound List and Target Analyte List

Target Compound List

Volatiles

Chloromethane
Bromomethane
Vinyl Chloride
Chloroethane
Methylene Chloride
Acetone
Carbon Disulfide
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethene (total)
Chloroform
1,2-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Carbon Tetrachloride
Bromodichloromethane
1,2-Dichloropropane
Cis-1,3-Dichloropropene
Trichloroethene
Dibromochloromethane
1,1,2-Trichloroethane
Benzene
trans-1,3-Dichloropropane
Bromoform
4-Methyl-2-pentanone
2-Hexanone
Tetrachloroethene
Toluene
1,1,2,2-Tetrachloroethane
Chlorobenzene
Ethyl benzene
Styrene
Xylenes (total)

Source: Target Compound List for water and soil with low or medium levels of volatile and semivolatile organic contaminants, as shown in the Quality Assurance Project Plan for Region V Superfund Site Assessment Program, September 27, 1991.

Target Compound List (Continued)

Semivolatiles

Phenol	Acenaphthene
bis(2-Chloroethyl)ether	2,4-Dinitrophenol
2-Chlorophenol	4-Nitrophenol
1,3-Dichlorobenzene	Dibenzofuran
1,4-Dichlorobenzene	2,4-Dinitrotoluene
1,2-Dichlorobenzene	Diethylphthalate
2-Methylphenol	4-Chlorphenyl-phenyl ether
2,2-oxybis-(1-Chloropropane)*	Fluroene
4-Methylphenol	4-Nitroaniline
N-Nitroso-di-n-dipropylamine	4,6-Dinitro-2-methylphenol
Hexachloroethane	N-Nitrosodiphenylamine
Nitrobenzene	4-Bromophenyl-phenyl ether
Isophorone	Hexachlorobenzene
2-Nitrophenol	Pentachlorophenol
2,4-Dimethylphenol	Phenanthrenel
bis(2-Chloroethoxy)methane	Anthracene
2,4-Dichlorophenol	Carbazole
1,2,4-Trichlorobenzene	Di-n-butylphthalate
Naphthalene	Fluoranthene
4-Chloroaniline	Pyrene
Hexachlorobutadiene	Butyl benzyl phthalate
4-Chloro-3-methylhenol	3,3-Dichlorbenzidine
2-Methylnaphthalene	Benzo(a)anthracene
Hexachlorocyclopentadiene	Chrysene
2,4,6-Trichlorophenol	bis(2-Ethylhexyl)phthalate
2,4,5-Trichlorophenol	Di-n-Octyphthalate
2-Chloronephthalene	Benzo(b)fluoranthene
2-Nitroaniline	Benzo(k)fluoranthene
Dimethylphthalate	Benzo(a)pyrene
Acenaphthylene	Indeno(1,2,3-cd)pyrene
2,6-Dinitrotoluene	Dibenzo(a,h)anthracene
3-Nitroaniline	Benzo(g,h,i)perylene

* Previously known by the name of bis(2-chloroisopropyl)ether.

Source: Target Compound List for water and soil with low or medium levels of volatile and semivolatile organic contaminants, as shown in the Quality Assurance Project Plan for Region V Superfund Site Assessment Program, September 27, 1991.

Target Compound List (Continued)

Pesticide/PCB

alpha-BHC	4,4-DDT
beta-BHC	Methoxychlor
delta-BHC	Endrin ketone
gamma-BHC (Lindane)	Endrin aldehyde
Heptachlor	alpha-chlordane
Aldrin	gamma-chlordane
Heptachlor epoxide	Toxaphene
Endosulfan I	Aroclor-1016
Dieldrin	Aroclor-1221
4,4-DDE	Aroclor-1232
Endrin	Aroclor-1242
Endosulfan II	Aroclor-1248
4,4-DDD	Aroclor-1254
Endosulfan sulfate	Aroclor-1260

Source: Target Compound List for water and soil containing less than high concentrations of pesticides/aroclors, as shown in the Quality Assurance Project Plan for Region V Superfund Site Assessment Program, September 27, 1991.

Target Analyte List

Aluminum	Magnesium
Antimony	Manganese
Arsenic	Mercury
Barium	Nickel
Beryllium	Potassium
Cadmium	Selenium
Calcium	Silver
Chromium	Sodium
Cobalt	Thallium
Copper	Vanadium
Iron	Zinc
Lead	Cyanide

Source: Target Analyte List in the Quality Assurance Project Plan for Region V Superfund Site Assessment Program, September 27, 1991.

Dioxin Compound List

	TEF
2,3,7,8-Tetrachlorinated dibenzo-p-dioxin	1.0
2,3,7,8-Tetrachlorinated dibenzofuran	0.1
1,2,3,7,8-Pentachlorinated dibenzofuran	0.05
1,2,3,7,8-Pentachlorinated dibenzo-p-dioxin	0.5
2,3,4,7,8-Pentachlorinated dibenzofuran	0.5
1,2,3,4,7,8-Hexachlorinated dibenzofuran	0.1
1,2,3,6,7,8-Hexachlorinated dibenzofuran	0.1
1,2,3,4,7,8-Hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,6,7,8-Hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,7,8,9-Hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,4,6,7,8-Heptachlorinated dibenzofuran	0.01
1,2,3,4,6,7,8-Heptachlorinated dibenzo-p-dioxin	0.01
1,2,3,4,6,7,9-Heptachlorinated dibenzofuran	0.01
Octachlorinated dibenzo-p-dioxin	0.001
Octachlorinated dibenzofuran	0.001

TEF - Toxicity Equivalency Factor

Appendix C

Alco Steel Service

Analytical Results

Appendix C

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Data Reporting Qualifiers
Definitions for Organic Chemical Data Qualifiers

R - Indicates that the data are unusable. The compound may or may not be present.

U - Indicates compound was analyzed for but not detected. The associated numerical value is the sample quantitation limit.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

N - Indicates presumptive evidence of a compound. This flag is only used for TICs where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, the N code is not used.

P - This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns. The lower of the two values is reported and flagged with a "P".

C - This flag applies to results where identification has been confirmed by GC/MS.

B - This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag must be used for a TIC as well as for a positively identified TCL compound.

E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for the specific analysis. This flag will not apply to pesticide/PCBs analyzed by GC/MS methods. If one or more compounds have a response greater than full scale, the sample or extract must be diluted and re-analyzed according to the specifications.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

X - Other specific flags may be required to properly define the results. The "X" flags are fully described on the data tables.

Data Reporting Qualifiers
Definitions for Inorganic Chemical Data Qualifiers

R - Indicates that the data are unusable. The compound may or may not be present.

U - Indicates compound was analyzed for but not detected. The associated numerical value is the sample quantitation limit.

J - Indicates an estimated value.

B - Indicates that the reported value is less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).

E - The reported value is estimated because of the presence of interference.

M - Duplicate injection precision criteria not met.

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions (MSA).

W - Post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.

* - Duplicate analysis was not within control limits.

+ - Correlation coefficient for the MSA was less than 0.995.

Volatile Organic Analysis for Residential Well Samples Alco Steel Service					
Volatile Compound	Sample Location and Number Concentrations in ug/L				
	RW01	RW02	RW04 Background	RW05	RW06
Chloromethane	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	1 U	1 U	1 U	1 U
Acetone	3 U	3 U	3 U	3 U	3 U
Carbon Disulfide	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	1 U	1 U	1 U	1 U
2-Butanone	3 U	3 U	3 U	3 U	3 U
Bromochloromethane	1 U	1 U	1 U	1 U	1 U
Chloroform	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	1 U	1 U	1 U	1 U
Benzene	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	1 U	1 U	1 U	1 U	1 U
Cis-1,3-Dichloropropene	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-Pentanone	3 U	3 U	3 U	3 U	3 U
Trans-1,3-Dichloropropene	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	1 U	1 U	1 U	1 U
2-Hexanone	3 U	3 U	3 U	3 U	3 U
Dibromochloromethane	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	1 U	1 U	1 U	1 U
m&/or p-Xylene	1 U	1 U	1 U	1 U	1 U
o-Xylene	1 U	1 U	1 U	1 U	1 U
Styrene	1 U	1 U	1 U	1 U	1 U
Bromoform	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-Chloropropan	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Total Number of TICS *	0	0	0	0	0

*Number, not concentration, of tentatively identified compounds (TICs) is reported on this table.

Semivolatile Organic Analysis for Residential Well Samples Alco Steel Service					
Semivolatile Compound	Sample Location and Number Concentrations in ug/L				
	RW01	RW02	RW04 Background	RW05	RW06
Phenol	5 U	5 U	5 U	5 U	5 U
bis(2-Chloroethyl)Ether	5 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5 U	5 U	5 U	5 U	5 U
2-Methylphenol	5 U	5 U	5 U	5 U	5 U
bis(2-Chloroisopropyl)ether	5 U	5 U	5 U	5 U	5 U
4-Methylphenol	5 U	5 U	5 U	5 U	5 U
N-Nitroso-di-n-propylamine	5 U	5 U	5 U	5 U	5 U
Hexachloroethane	5 U	5 U	5 U	5 U	5 U
Nitrobenzene	5 U	5 U	5 U	5 U	5 U
Isophorone	5 U	5 U	5 U	5 U	5 U
2-Nitrophenol	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5 U	5 U	5 U	5 U	5 U
bis(2-Chloroethoxy)methane	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5 U	5 U	5 U	5 U	5 U
1,2,4-Trichlorobenzene	5 U	5 U	5 U	5 U	5 U
Naphthalene	5 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5 U	5 U	5 U	5 U	5 U
2-Methylnapthalene	5 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	5 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	20 U	20 U	20 U	20 U	20 U
2-Chloronaphthalene	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	20 U	20 U	20 U	20 U	20 U
Dimethylphthalate	5 U	5 U	5 U	5 U	5 U
Acenaphthylene	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	20 U	20 U	20 U	20 U	20 U
Acenaphthene	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	20 U	20 U	20 U	20 U	20 UJ
4-Nitrophenol	20 U	20 U	20 U	20 U	20 U
Dibenzofuran	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrotoluene	5 U	5 U	5 U	5 U	5 U
Diethylphthalate	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5 U	5 U	5 U	5 U	5 U
Fluorene	5 U	5 U	5 U	5 U	5 U
4-Nitroaniline	20 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	20 U	20 U	20 U	20 U	20 U

Semivolatile Organic Analysis for Residential Well Samples(Continued) Alco Steel Service					
Semivolatile Compound	Sample Location and Number Concentrations in ug/L				
	RW01	RW02	RW04 Background	RW05	RW06
N-Nitrosodiphenyylamine	5 U	5 U	5 U	5 U	5 U
4-Bromophenyl-phenylether	5 U	5 U	5 U	5 U	5 U
Hexachlorobenzene	5 U	5 U	5 U	5 U	5 U
Pentachlorophenol	20 U	20 U	20 U	20 U	20 U
Phenanthrene	5 U	5 U	5 U	5 U	5 U
Anthracene	5 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5 U	5 U	5 U	5 U	5 U
Fluoranthene	5 U	5 U	5 U	5 U	5 U
Pyrene	5 U	5 U	5 U	5 U	5 U
Butylbenzylphthalate	5 UJ	5 UJ	5 UJ	5 UJ	5 U
3,3'-Dichlorobenzidine	5 U	5 U	5 U	5 U	5 UJ
Benzo(a)Anthracene	5 U	5 U	5 U	5 U	5 U
Chrysene	5 U	5 U	5 U	5 U	5 U
bis(2-Ethylhexyl)Phthalate	8 UB	5 UB	6 UB	4 UB	5 UB
di-n-Octyl Phthalate	5 U	5 U	5 U	5 U	5 U
Benzo(b)Fluoranthene	5 U	5 U	5 U	5 U	5 U
Benzo(k)Fluoranthene	5 U	5 U	5 U	5 U	5 U
Benzo(a)Pyrene	5 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)Pyrene	5 U	5 U	5 U	5 U	5 U
Dibenzo(a,h)Anthracene	5 U	5 U	5 U	5 U	5 U
Benzo(g,h,i)Perylene	5 U	5 U	5 U	5 U	5 U
Total Number of TICs *	0	0	1	0	1

* Number, not concentration, of tentatively identified compounds (TICs) is reported on this table.

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Semivolatile Organic Analysis for Residential Well Samples Tentatively Identified Compounds Alco Steel Service Concentrations in µg/l		
Compound Name	Retention Time	Estimated Concentration
Sample RW04		
2-Hexene-1-OL, (z) (8CI9CI)	2.58	15 J
Sample RW06		
2-Hexene-1-OL, (z) (8CI9CI)	2.52	23 J

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Pesticide/Analysis for Residential Well Samples Alco Steel Service					
Pesticide/ PCB	Sample Location and Number Concentrations in ug/L				
	RW01	RW02	RW04 Background	RW05	RW06
Alpha-BHC	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Lindane	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Aldrin	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Heptachlor Epoxide	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Endosulfan I	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Dieldrin	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan II	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
p,p - DDT	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methoxychlor	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Beta-bhc	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Delta-bhc	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Gamma-chlordane	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Alpha-chlordane	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
p,p-DDE	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
p,p-DDD	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin Aldehyde	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endosulfan Sulfate	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Endrin Ketone	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Technical Chlordane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toxaphene	1 U	1 U	1 U	1 U	1 U
Aroclor-1221	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor-1232	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor-1242	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Arochlor-1016	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor-1248	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor-1254	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor-1260	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

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Inorganic Analysis for Residential Well Samples Alco Steel Service					
Metals and Cyanide	Sample Location and Number Concentrations in ug/L				
	RW01	RW02	RW04 Background	RW05	RW06
Aluminum	80 U	80 U	80 U	80 U	80 U
Antimony	2 U	2 U	2 U	2 U	2 U
Arsenic	2 U	2 U	2 U	2 U	2 U
Barium	212	103	38	105	6 U
Beryllium	2 U	2 U	2 U	2 U	2 U
Cadmium	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Calcium	133000	98000	136000	13000	2000
Chromium	10 U	10 U	10 U	10 U	10 U
Cobalt	6 U	6 U	6 U	6 U	6 U
Copper	37	8	18	10	14
Iron	668	1280	474	226	80 U
Lead	2 U	2 U	2 U	2 U	2 U
Magnesium	57000	50000	62000	7000	1000
Manganese	213	235	81	5 U	5 U
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	20 U	20 U	20 U	20 U	20 U
Potassium	14000	18000	5000 U	8000	5000
Selenium	2 U	2 U	2 U	2 U	2 U
Silver	6 U	6 U	6 U	6 U	6 U
Sodium	114000	111000	34000	202000	395000
Thallium	2 U	2 U	2 U	2 U	2 U
Vanadium	8 U	8 U	11	8 U	8 U
Zinc	40 U	40 U	40 U	205	40 U
Cyanide	5 U	5 U	5 U	5 U	5 U

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Volatile Organic Analysis for Soil Samples Alco Steel Service						
Volatile Compound	Sample Locations and Number Concentrations in ug/kg					
	SS01 Background	SS02	SS03	SS04	SS05	SS06
Chloromethane	11 UJ	11 U	12 U	10 U	15 U	10 U
Bromomethane	11 UJ	11 U	12 U	10 U	15 U	10 U
Vinyl Chloride	11 UJ	11 U	12 UJ	10 U	15 U	10 U
Chloroethane	11 UJ	11 UJ	12 UJ	10 UJ	15 UJ	10 UJ
Methylene Chloride	3 U	11 UJ	12 UJ	10 UJ	15 UJ	10 UJ
Acetone	14 UB	11 UJ	12 U	10 UJ	15 UJ	10 UJ
Carbon Disulfide	11 UJ	11 U	12 U	10 U	15 U	10 UJ
1,1-Dichloroethene	11 UJ	11 U	12 U	10 U	15 U	10 U
1,1-Dichloroethane	11 UJ	11 U	12 U	10 U	15 U	10 U
1,2-Dichloroethene (total)	11 UJ	11 U	12 U	10 U	15 U	10 U
Chloroform	11 UJ	11 U	12 U	10 U	15 U	10 U
1,2-Dichloroethane	11 UJ	11 U	12 U	10 U	15 U	10 U
2-Butanone	11 UJ	11 UJ	12 UJ	10 U	15 UJ	10 UJ
1,1,1-Trichloroethane	11 UJ	11 U	12 U	10 U	15 U	10 U
Carbon Tetrachloride	11 UJ	11 U	12 U	10 U	15 U	10 U
Bromodichloromethane	11 UJ	11 U	12 U	10 U	15 U	10 U
1,2-Dichloropropane	11 UJ	11 U	12 U	10 U	15 U	10 U
cis-1,3-Dichloropropene	11 UJ	11 U	12 U	10 U	15 U	10 U
Trichloroethene	11 UJ	11 U	12 U	10 U	15 U	10 U
Dibromochloromethane	11 UJ	11 U	12 U	10 U	15 U	10 U
1,1,2-Trichloroethane	11 UJ	11 U	12 U	10 U	15 U	10 U
Benzene	11 UJ	11 U	12 U	10 U	15 U	10 U
trans-1,3-Dichloropropene	11 UJ	11 U	12 U	10 U	15 U	10 U
Bromoform	11 UJ	11 U	12 U	10 U	15 U	10 U
4-Methyl-2-Pentanone	11 UJ	11 U	12 U	10 U	15 U	10 U
2-Hexanone	11 UJ	11 U	12 U	10 U	15 U	10 U
Tetrachloroethene	11 UJ	11 U	12 U	10 U	15 U	4 J
1,1,2,2-Tetrachloroethane	11 UJ	11 U	12 U	10 U	15 U	10 U
Toluene	1 UJ	11 U	12 U	3 J	15 U	4 J
Chlorobenzene	11 UJ	11 U	12 U	10 U	15 U	10 U
Ethylbenzene	11 UJ	11 U	12 U	10 U	15 U	10 U
Styrene	11 UJ	11 U	12 U	10 U	15 U	10 U
Xylene (total)	11 UJ	11 U	12 U	10 U	15 U	10 U
Total Number of TICs *	0	0	1	1	2	1

* Number, not concentrations, of tentatively identified compounds (TICs).

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Volatile Organic Analysis for Soil Samples (Continued) Alco Steel Service					
Volatile Compound	Sample Locations and Number Concentrations in ug/kg				
	SS07	SS08	SS09	SS10	SS11
Chloromethane	10 U	12 UJ	12 UJ	11 U	10 U
Bromomethane	10 U	12 UJ	12 UJ	11 U	10 U
Vinyl Chloride	10 U	12 UJ	12 UJ	11 U	10 U
Chloroethane	10 UJ	12 UJ	12 UJ	11 UJ	10 UJ
Methylene Chloride	10 UJ	6 J	2 J	2 J	34 J
Acetone	10 UJ	12 UJ	12 UJ	11 UJ	10 UJ
Carbon Disulfide	10 U	12 UJ	12 UJ	11 U	10 U
1,1-Dichloroethene	10 U	12 UJ	12 UJ	11 U	10 U
1,1-Dichloroethane	10 U	12 UJ	12 UJ	11 U	10 U
1,2-Dichloroethene (total)	10 U	12 UJ	12 UJ	11 U	10 U
Chloroform	10 U	12 UJ	12 UJ	11 U	10 U
1,2-Dichloroethane	10 U	12 UJ	12 UJ	11 U	10 U
2-Butanone	10 U	12 UJ	12 UJ	11 U	10 U
1,1,1-Trichloroethane	10 U	12 UJ	12 UJ	11 U	10 U
Carbon Tetrachloride	10 U	12 UJ	12 UJ	11 U	10 U
Bromodichloromethane	10 U	12 UJ	12 UJ	11 U	10 U
1,2-Dichloropropane	10 U	12 UJ	12 UJ	11 U	10 U
cis-1,3-Dichloropropene	10 U	12 UJ	12 UJ	11 U	10 U
Trichloroethene	10 U	12 UJ	12 UJ	11 U	10 U
Dibromochloromethane	10 U	12 UJ	12 UJ	11 U	10 U
1,1,2-Trichloroethane	10 U	12 UJ	12 UJ	11 U	10 U
Benzene	10 U	12 UJ	12 UJ	11 U	10 U
trans-1,3-Dichloropropene	10 U	12 UJ	12 UJ	11 U	10 U
Bromoform	10 U	12 UJ	12 UJ	11 U	10 U
4-Methyl-2-Pentanone	10 U	12 UJ	12 UJ	11 U	10 U
2-Hexanone	10 U	12 UJ	12 UJ	11 U	10 U
Tetrachloroethene	10 U	12 UJ	12 UJ	11 U	10 U
1,1,2,2-Tetrachloroethane	10 U	12 UJ	12 UJ	11 U	10 U
Toluene	10 U	2 UJ	2 J	11 U	10 U
Chlorobenzene	10 U	12 J	12 UJ	11 U	10 U
Ethylbenzene	10 U	12 UJ	12 UJ	11 U	10 U
Styrene	10 U	12 UJ	12 UJ	11 U	10 U
Xylene (total)	10 U	12 UJ	12 UJ	11 U	10 U
Total Number of TICs *	1	1	2	1	2

* Number, not concentrations, of tentatively identified compounds (TICs).

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Volatile Organic Analysis for Soil Samples Tentatively Identified Compounds Alco Steel Service Concentrations in µg/kg		
Compound Name	Retention Time	Estimated Concentration
Compound Name	Retention Time	Estimated Concentration
Sample SS03		
Unknown	16.767	31 J
Sample SS04		
Unknown	2.302	7 J
Unknown	16.786	18 J
Sample SS05		
Methane, trichlorofluoro-	2.302	35 JN
Unknown	16.766	58 J
Sample SS06		
Methane, trichlorofluoro-	2.312	13 JN
Sample SS07		
Unknown	2.302	7 J
Sample SS08		
Unknown	2.882	4 J
Sample SS09		
Methane, trichlorofluoro-	2.283	22 JN
Unknown	16.748	7 J
Sample SS10		
Unknown	16.757	10 J

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Semivolatile Organic Analysis for Soil Samples Alco Steel Service						
Semivolatile Compound	Sample Location and Number / Concentrations in µg/kg					
	SS01 Background	SS02	SS03	SS04	SS05	SS06
Phenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
bis(2-Chloroethyl)Ether	350 UJ	1800 U	1500 U	350 UJ	510 UJ	1700 UJ
2-Chlorophenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
1,3-Dichlorobenzene	350 U	1800 U	1500 U	350 U	510 U	1700 U
1,4-Dichlorobenzene	350 U	1800 U	1500 U	350 U	510 U	1700 U
1,2-Dichlorobenzene	350 U	1800 U	1500 U	350 U	510 U	1700 U
2-Methylphenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
2,2'-oxybis(1-Chloropropane	350 U	1800 UJ	1500 UJ	350 U	510 U	1700 U
4-Methylphenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
n-Nitroso-Di-n-Propylamine	350 U	1800 U	1500 U	350 U	510 U	1700 U
Hexachloroethane	350 U	1800 U	1500 U	350 U	510 U	1700 U
Nitrobenzene	350 UJ	1800 U	1500 U	350 UJ	510 UJ	1700 UJ
Isophorone	350 U	1800 U	1500 U	350 U	510 U	1700 U
2-Nitrophenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
2,4-Dimethylphenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
bis(2-Chloroethoxy)Methane	350 U	1800 U	1500 U	350 U	510 U	1700 U
2,4-Dichlorophenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
1,2,4-Trichlorobenzene	350 U	1800 U	220 J	350 U	510 U	1700 U
Naphthalene	350 U	320 J	400 J	150 J	120 J	220 J
4-Chloroaniline	350 U	1800 U	1500 U	350 U	510 U	1700 U
Hexachlorobutadiene	350 UJ	1800 UJ	1500 UJ	350 UJ	510 U	1700 UJ
4-Chloro-3-Methylphenol	350 U	1800 U	1500 U	350 U	510 UJ	1700 U
2-Methylnaphthalene	350 U	260 J	190 J	290 J	130 J	240 J
Hexachlorocyclopentadiene	350 UJ	1800 UJ	1500 UJ	350 UJ	510 UJ	1700 UJ
2,4,6-Trichlorophenol	350 U	1800 U	1500 U	350 U	510 U	1700 U
2,4,5-Trichlorophenol	860 U	4400 U	3700 U	840 U	1200 U	4200 U
2-Chloronaphthalene	350 U	1800 U	1500 U	350 U	510 U	1700 U
2-Nitroaniline	860 U	4400 UJ	3700 UJ	840 U	1200 U	4200 U
Dimethyl Phthalate	350 U	1800 U	1500 U	350 U	510 U	1700 U
Acenaphthylene	350 U	1800 U	94 J	59 J	980	450 J
2,6-Dinitrotoluene	350 U	1800 U	1500 U	350 U	510 U	1700 U
3-Nitroaniline	860 U	4400 U	3700 U	840 U	1200 U	4200 U
Acenaphthene	350 U	850 J	390 J	87 J	120 J	340 J
2,4-Dinitrophenol	860 U	4400 U	3700 U	840 U	1200 U	4200 U
4-Nitrophenol	860 UJ	4400 U	3700 U	840 U	1200 UJ	4200 U
Dibenzofuran	350 U	430 J	240 J	190 J	230 J	200 J

Semivolatile Organic Analysis for Soil Samples (Continued) Alco Steel Service						
Semivolatile Compound	Sample Location and Number / Concentrations in µg/kg					
	SS01 Background	SS02	SS03	SS04	SS05	SS06
2,4-Dinitrotoluene	350 U	1800 U	1500 U	350 U	510 U	1700 U
Diethylphthalate	350 U	1800 U	1500 U	350 U	510 U	1700 U
4-Chlorophenyl-phenylether	350 U	1800 U	1500 U	350 U	510 U	1700 U
Fluorene	350 U	950 J	410 U	100 J	120 J	350 J
4-Nitroaniline	860 U	4400 UJ	3700 UJ	840 U	1200 U	4200 U
4,6-Dinitro-2-Methylphenol	860 U	4400 U	3700 U	840 U	1200 U	4200 U
n-Nitrosodiphenylamine	350 U	1800 U	1500 U	350 U	510 U	1700 U
4-Bromophenyl-phenylether	350 U	1800 UJ	1500 UJ	350 U	510 U	1700 U
Hexachlorobenzene	350 U	1800 UJ	1500 UJ	350 U	510 U	1700 U
Pentachlorophenol	860 U	4400 U	3700 U	840 U	1200 U	4200 U
Phenanthrene	73 J	9400	4200	1300	2300	3800
Anthracene	350 U	2600	940 J	330 J	1200	1200 J
Carbazole	350 U	1200 J	580 J	130 J	290 J	580 J
di-n-Butylphthalate	350 UJB	570 UJB	1200 UJB	350 UJB	1200 UJB	1200 UJB
Fluoranthene	98 J	11000	5400	1700	12000 D	5800
Pyrene	96 J	12000	5300	2400	12000 D	4900
Butylbenzylphthalate	350 U	1800 U	1500 U	350 U	140 J	370 J
3,3'-Dichlorobenzidine	350 U	1800 U	1500 U	350 U	510 U	1700 U
Benzo(a)Anthracene	53 J	4800	2600	1200	9300 D	2400
Chrysene	91 J	5600	3300	1900	11000 D	4000
bis(2-Ethylhexyl)Phthalate	350 U	1800 U	1500 U	350 U	140 J	370 J
di-n-Octyl Phthalate	350 U	1800 UJ	300 J	43 J	510 U	460 J
Benzo(b)Fluoranthene	72 J	3900	2400	2200	8300 D	4900
Benzo(k)Fluoranthene	59 J	3400	2100	350 U	510 U	1700 U
Benzo(a)Pyrene	65 J	4100	2500	1600	8200 D	3600
Indeno(1,2,3-cd)Pyrene	69 J	2500	1900	920	5800 D	2100
Dibenzo(a,h)Anthracene	20 J	990 J	530 J	260 J	1000	460 J
Benzo(g,h,i)Perylene	82 J	2300	1700	910	4700 D	1900
Total Number of TICs*	21	22	23	25	21	23

*Number, not concentrations of tentatively identified compounds (TICs).

Semivolatile Organic Analysis for Soil Samples (Continued) Alco Steel Service					
Semivolatile Compound	Sample Location and Number / Concentrations in µg/kg				
	SS07 Background	SS08	SS09	SS10	SS11
Phenol	340 U	390 U	1900 U	360 U	370 U
bis(2-Chloroethyl)Ether	340 UJ	390 UJ	1900 UJ	360 UJ	370 UJ
2-Chlorophenol	340 U	390 U	1900 U	360 U	370 U
1,3-Dichlorobenzene	340 U	390 U	1900 U	360 U	370 U
1,4-Dichlorobenzene	340 U	390 U	1900 U	360 U	370 U
1,2-Dichlorobenzene	340 U	390 U	1900 U	360 U	370 U
2-Methylphenol	340 U	390 U	1900 U	360 U	370 U
2,2'-oxybis(1-Chloropropane)	340 U	390 U	1900 U	360 U	370 U
4-Methylphenol	340 U	390 U	1900 U	360 U	370 U
n-Nitroso-Di-n-Propylamine	340 U	390 U	1900 U	360 U	370 U
Hexachloroethane	340 U	390 U	1900 U	360 U	370 U
Nitrobenzene	340 U	390 UJ	1900 UJ	360 UJ	370 UJ
Isophorone	340 U	390 U	1900 U	360 U	370 U
2-Nitrophenol	340 U	390 U	1900 U	360 U	370 U
2,4-Dimethylphenol	340 U	390 U	1900 U	360 U	370 U
bis(2-Chloroethoxy)Methane	340 U	390 U	1900 U	360 U	370 U
2,4-Dichlorophenol	340 U	390 U	1900 U	360 U	370 U
1,2,4-Trichlorobenzene	340 U	180 J	1900 U	360 U	370 U
Naphthalene	86 J	130 J	190 J	70 J	25 J
4-Chloroaniline	340 U	390 U	1900 U	360 U	370 U
Hexachlorobutadiene	340 UJ	390 UJ	1900 UJ	360 UJ	370 UJ
4-Chloro-3-Methylphenol	340 U	390 U	1900 U	360 U	370 U
2-Methylnaphthalene	110 J	240 J	260 J	66 J	370 U
Hexachlorocyclopentadiene	340 UJ	390 UJ	1900 U	360 UJ	370 UJ
2,4,6-Trichlorophenol	340 U	390 U	1900 U	360 U	370 U
2,4,5-Trichlorophenol	830 U	940 U	4700 U	870 U	890 U
2-Chloronaphthalene	340 U	390 U	1900 U	360 U	370 U
2-Nitroaniline	830 U	940 U	4700 U	870 U	890 U
Dimethyl Phthalate	340 J	390 U	1900 U	360 U	370 U
Acenaphthylene	240 J	59 J	240 J	36 U	370 U
2,6-Dinitrotoluene	340 U	390 U	1900 U	360 U	370 U
3-Nitroaniline	830 U	940 U	4700 U	870 U	890 U
Acenaphthene	120 J	37 J	750 J	240 J	370 U
2,4-Dinitrophenol	830 U	940 U	4700 U	870 U	890 U
4-Nitrophenol	830 UJ	940 UJ	4700 U	870 UJ	890 UJ
Dibenzofuran	96 J	64 J	320 J	150 J	370 U

Semivolatile Organic Analysis for Soil Samples (Continued) Alco Steel Service					
Semivolatile Compound	Sample Location and Number / Concentrations in µg/kg SS07 Background	SS08	SS09	SS10	SS11
2,4-Dinitrotoluene	340 U	390 U	1900 U	360 U	370 U
Diethylphthalate	340 U	390 U	1900 U	360 U	370 U
4-Chlorophenyl-phenylether	340 U	390 U	1900 U	360 U	370 U
Fluorene	120 J	66 J	810 J	300 J	370 U
4-Nitroaniline	830 U	940 U	4700 U	870 U	890 U
4,6-Dinitro-2-Methylphenol	830 U	940 U	4700 U	870 U	890 U
n-Nitrosodiphenylamine	340 U	390 U	1900 U	360 U	370 U
4-Bromophenyl-phenylether	340 U	390 U	1900 U	360 U	370 U
Hexachlorobenzene	340 U	390 U	1900 U	360 U	370 U
Pentachlorophenol	830 U	940 U	4700 U	870 U	890 U
Phenanthrene	1100	660	6800	2600	100 J
Anthracene	740	340 J	2700	780	20 J
Carbazole	340 J	39 J	960 J	370	370 U
di-n-Butylphthalate	340 UJB	570 B	4800 B	360 UJB	370 UJB
Fluoranthene	2500 D	960	16000	3400 D	180 J
Pyrene	3800 D	1400	12000	3000 D	91 J
Butylbenzylphthalate	340 U	390 U	300 J	360 U	370 U
3,3'-Dichlorobenzidine	340 U	390 U	1900 U	360 U	370 U
Benzo(a)Anthracene	2200	380 J	4700	1400	81 J
Chrysene	3100 D	1200	10000	2500	100 J
bis(2-Ethylhexyl)Phthalate	340 U	390 U	300 J	360 U	370 U
di-n-Octyl Phthalate	340 U	390 U	1900 U	360 U	370 U
Benzo(b)Fluoranthene	2200	1800	8900	2400	96 J
Benzo(k)Fluoranthene	2800	390 U	1900 U	360 U	63 J
Benzo(a)Pyrene	2400	1900	7800	1800	79 J
Indeno(1,2,3-cd)Pyrene	1500	850	4000	850	82 J
Dibenzo(a,h)Anthracene	530	390 U	1300 J	270 J	25 J
Benzo(g,h,i)Perylene	1200	780	3100	680	83 J
Total Number of TICs*	22	24	21	20	22

*Number, not concentrations, of tentatively identified compounds (TICs).

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Semivolatile Organic Analysis for Soil Samples Tentatively Identified Compounds Alco Steel Service Concentrations in µg/kg		
Compound Name	Retention Time	Estimated Concentration
Sample SS01		
Unknown	2.126	76 UJB
2-Pentanone, 4-hydroxy-4-met	3.501	6100 UJNBA
Unknown	9.258	74 J
Unknown Alkane	10.131	140 J
Unknown Amide	12.388	80 J
Unknown Amide	13.982	110 J
Unknown Amide	15.300	1500 UJB
Unknown Alkane	16.144	220 J
Unknown Phthalate	16.533	110 J
Unknown Alkane	17.396	280 J
Unknown Amide	17.946	820 UJB
Unknown Alkane	17.984	200 J
Unknown Alkane	18.563	830 J
Unknown Hydrocarbon	18.591	970 J
Benzo[e]pyrene	18.648	150 J
Unknown Alkane	19.834	970 J
Unknown	19.900	310 J
Unknown	20.355	280 J
Unknown Alkane	21.493	820 J
Unknown	21.740	160 J
Unknown	22.186	680 J
Sample SS02		
2-Pentanone, 4-hydroxy-4-met	3.421	12000 UJNBA
Naphthalene, -dimethyl-	7.794	720 J
4H-Cyclopenta[]phenanthrene	12.147	1500 J
Sulfur, mol. (S8)	13.200	1900 JN
Benzo[b]naphtho[2,3-d]furan	14.006	1100 JN
1111-Benzo[]fluorene	14.442	2200 J
1111-Benzo[]fuorene	14.566	1000 J
Benzo[b]naphtho[1,2-d]thioph	15.656	1000 JN
Unknown Phthalate	16.472	1800 J
Unknown	16.652	2100 J
Unknown	16.690	1300 J
Unknown	17.146	2400 UJB
Unknown	17.269	1100 J
Unknown Amide	17.895	2300 UJB
Unknown	18.274	1900 UJB
Benzo[j]fluoranthene	18.350	1700 JN
Unknown	18.407	1100 J
Unknown Alkane	18.511	2300 J
Benzo[e]pyrene	18.635	3800 JN
Unknown	18.948	2100 J
Unknown	20.427	1400 J
Unknown	20.551	3800 UJB

Semivolatile Organic Analysis for Soil Samples (Continued)
Tentatively Identified Compounds
Alco Steel Service
Concentrations in µg/kg

Compound Name	Retention Time	Estimated Concentration
Sample SS03		
2-Pentanone, 4-hydroxy-4-met	3.403	8400 JNA
Unknown Alkyl Benzene	4.579	1900 J
Unknown Alkane	4.949	970 J
Unknown Alkane	12.471	1000 J
Unknown	12.841	1000 J
11H-Benzo[]fluorene	14.396	1000 J
Unknown PAH	15.402	1000 J
Unknown Phthalate	16.445	6000 J
Unknown PAH	16.919	1800 J
Unknown Alkane	17.071	1100 J
Unknown Amide	17.868	1700 J
Unknown	18.247	1500 UJB
Benzo[e]pyrene	18.294	870 JN
Unknown	18.370	940 J
Unknown	18.484	2000 UJ
Benzo[e]acephenanthrylene	18.579	2300 UJN
Unknown	18.968	1200 J
Unknown	19.603	1200 J
Unknown Hydrocarbon	19.859	1000 J
Naphtho[chrysene	20.372	1300 J
Unknown	20.504	2400 UJB
Unknown	21.367	1600 UJB
Unknown	21.491	1300 UJB
Sample SS04		
2-Pentanone, 4-hydroxy-4-met	3.502	5700 UJNBA
Unknown Alkane	7.514	340 J
Naphthalene, -dimethyl-	7.893	350 J
Unknown Alkane	8.035	360 J
Dibenzofuran, methyl-	9.667	520 J
Naphthalene, -dimethyl-(-met	10.112	370 J
Unknown Alkane	10.160	790 J
Naphthalene, -methyl-(-methy	10.663	330 J
-Biphenyl, - trichloro-	11.374	360 J
Unknown Alkane	11.810	510 J
-Biphenyl, - trichloro-	11.839	580 J
-Biphenyl, - trichloro-	12.123	440 J
Unknown Organic Acid	12.322	250 J
-Biphenyl, - tetrachloro-	12.389	400 J
-Biphenyl, - tetrachloro-	12.465	330 J
Unknown Alkane	12.607	200 J
-Biphenyl, - tetrachloro-	12.730	290 J
-Biphenyl, - trichloro-	12.797	210 J
-Biphenyl, - tetrachloro-	12.939	350 J
-Biphenyl, - tetrachloro-	13.366	390 J
-Biphenyl, - tetrachloro-	13.698	280 J
11H-Benzo[]fluorene	14.551	200 J
Unknown Alkane	16.202	210 J
Unknown Alkane	18.042	320 J
Unknown Hydrocarbon	20.735	260 J

Semivolatile Organic Analysis for Soil Samples (Continued)
Tentatively Identified Compounds
Alco Steel Service
Concentrations in µg/kg

Compound Name	Retention Time	Estimated Concentration
Sample SS05		
2-Pentanone, 4-hydroxy-4-met	3.492	4200 UJNBA
Unknown Alkane	10.160	600 J
Anthracene, -methyl-	12.275	740 J
Anthracene, methyl-	12.313	590 J
Cyclopenta(def)phenanthrenon	13.319	580 JN
Benzo[b]naphtho[2,3-d]furan	14.134	580 JN
11H-Benzo[]fluorene	14.362	630 J
11H-Benzo[]fluorene	14.561	2100 J
Pyrene, -methyl-	14.941	570 J
Unknown Amide	15.377	2400 UJB
7H-Benz[de]anthracen-7-one	15.604	1100 JN
Benzo[b]naphtho[2,3-d]thioph	15.794	1000 JN
Unknown PAH	15.870	770 J
Triphenylene, -methyl-	17.113	1100 J
Unknown PAH	17.188	600 J
Unknown Amide	18.042	1200 UJB
Benzo[j]fluoranthene	18.507	1900 JN
Unknown	18.640	1200 UJB
Benzo[e]pyrene	18.801	2400 JN
Unknown	19.607	980 J
Unknown Hydrocarbon	20.755	1300 J
Sample SS06		
2-Pentanone, 4-hydroxy-4-met	3.486	11000 UJNBA
-Biphenyl, -tetrachloro-	12.392	2200 J
-Biphenyl, -tetrachloro-	12.942	1300 J
-Biphenyl, -pentachloro-	13.796	2300 J
-Biphenyl, -pentachloro-	14.374	2100 J
11H-Benzo[]fluorene	14.564	1300 J
-Biphenyl, -pentachloro-	14.782	2200 J
-Biphenyl, - hexachloro	15.114	1200 J
-Biphenyl, - hexachloro	15.550	1800 J
Unknown	16.072	1100 J
Unknown Phthalate	16.499	1000 J
Unknown Phthalate	16.603	1900 J
Unknown	16.821	1300 JB
Unknown Phthalate	16.859	3300 J
Unknown Phthalate	17.248	3700 J
Unknown	18.054	23000 J
Unknown	18.225	13000 JB
Unknown	18.415	20000 J
Unknown	18.529	19000 JB
Unknown	19.610	39000 J
Unknown	20.293	11000 UJB
Unknown Hydrocarbon	20.776	26000 J
Unknown	21.440	17000 JB

Semivolatile Organic Analysis for Soil Samples (Continued)
Tentatively Identified Compounds
Alco Steel Service
Concentrations in µg/kg

Compound Name	Retention Time	Estimated Concentration
Sample SS07		
2-Pentanone, 4-hydroxy-4-met	3.510	7100 UJNBA
Unknown Alkane	8.366	220 J
Unknown Alkane	9.239	250 J
Unknown Alkane	10.121	340 J
Unknown Alkane	10.168	420 J
Unknown Alkane	10.975	220 J
Unknown Alkane	11.752	230 J
Unknown Alkane	11.809	240 J
Unknown Organic Acid	12.264	740 J
Unknown Organic Acid	12.340	510 J
Unknown Alkane	12.615	220 J
Unknown	13.735	190 J
Unknown	13.991	210 J
11H-Benzo[]fluorene	14.569	410 J
Unknown Amide	15.375	11000 UJB
Benzo[b]naphtho[]thiophene	15.802	1800 J
Unknown	16.210	1700 UJB
Triphenylene, -methyl-	17.111	1700 J
Unknown Amide	18.031	5600 UJB
Benzo[e]pyrene	18.505	2300 JN
Unknown Alkane	18.629	2600 J
Unknown Hydrocarbon	22.366	2100 J
Sample SS08		
2-Pentanone, 4-hydroxy-4-met	3.511	4100 UJNBA
Unknown Alkane	9.259	1100 J
Unknown Alkane	9.685	1200 J
Unknown Alkane	10.131	710 J
Unknown Alkane	10.188	1400 J
Unknown Alkane	11.829	660 J
-Biphenyl, pentachloro-	13.821	2000 J
-Biphenyl, hexachloro-	14.352	520 J
-Biphenyl, -pentachloro-	14.409	1500 J
-Biphenyl, -hexachloro	14.589	1100 J
-Biphenyl, -hexachloro	14.655	910 J
-Biphenyl, -hexachloro-	14.788	4300 J
-Biphenyl, -hexachloro	15.168	5200 J
-Biphenyl, -hexachloro	15.367	1800 J
-Biphenyl, -hexachloro	15.594	4000 J
-Biphenyl, -heptachl	15.832	1400 J
-Biphenyl, -heptachl	15.898	820 J
-Biphenyl, -heptachl	16.268	1000 J
-Biphenyl, -heptachl	16.334	1200 J
-Biphenyl, -heptachl	16.600	3800 J
-Biphenyl, -heptachl	17.046	1500 J
-Biphenyl, -Octach	17.140	750 J
-Biphenyl, -octac	17.226	850 J
-Biphenyl, -octac	17.947	740 J

Semivolatile Organic Analysis for Soil Samples (Continued)
Tentatively Identified Compounds
Alco Steel Service
Concentrations in µg/kg

Compound Name	Retention Time	Estimated Concentration
Sample SS09		
2-Pentanone, 4-hydroxy-4-met	3.500	5900 UJNBA
Naphthalene, -dimethyl-	7.911	1700 J
Unknown	8.793	1500 J
Naphthalene, -trimethyl-	8.831	2000 J
Naphthalene, -trimethyl-	8.878	2800 J
Naphthalene, -trimethyl-	9.021	2100 J
Naphthalene, -trimethyl-	9.049	1800 J
Naphthalene, -trimethyl-	9.172	2000 J
Sulfur, mol. (S8)	13.365	4500 JN
11H-Benzo[]fluorene	14.598	1700 J
Unknown Alkane	14.863	1800 J
Unknown Alkane	16.220	1700 J
Unknown Phthalate	16.618	9200 J
Unknown Alkane	16.855	2500 J
Chysene, -methyl-	17.140	1800 J
Unknown Alkane	17.471	2400 J
Unknown Alkane	18.069	9000 J
Unknown Alkane	18.648	4400 J
Benz[e]acephenanthrylene	19.074	3400 JN
Unknown	19.634	3900 UJB
Unknown Alkane	19.947	3500 J
Sample SS10		
2-Heptanone, 3-hydroxy-3-met	3.513	3400 JNA
Anthracene, -methyl-	12.154	310 J
Unknown Organic Acid	12.296	1500 J
Unknown Organic Acid	12.362	1400 J
Unknown Organic Acid	13.785	400 J
Unknown	14.022	330 J
Pyrene, -methyl-	14.402	280 J
11H-Benzo[]fluorene	14.620	380 J
Unknown Alkane	14.866	190 J
Unknown Amide	15.407	1500 UJB
Unknown Alkane	16.223	230 J
Unknown	16.763	270 UJB
Unknown	16.858	440 UJB
Unknown Alkane	17.484	320 J
Unknown Amide	18.063	750 UJB
Unknown Hydrocarbon	18.328	270 J
Unknown Alkane	18.660	1100 J
Unknown Hydrocarbon	18.698	310 J
Unknown Alkane	19.950	550 J
Unknown	21.686	820 J

Semivolatile Organic Analysis for Soil Samples (Continued) Tentatively Identified Compounds Alco Steel Service Concentrations in µg/kg		
Compound Name	Retention Time	Estimated Concentration
Sample SS11		
Unknown	2.130	93 UJB
2-Pentanone, 4-hydroxy-4-met	3.496	5400 UJNBA
Unknown Alkane	15.485	140 J
Unknown Alkane	16.149	430 J
Unknown Phthalate	16.537	370 J
Unknown Alkane	16.784	230 J
Unknown	17.031	200 UJB
Unknown Alkane	17.401	470 J
Unknown Amide	17.951	1100 UJB
Unknown Alkane	17.989	300 J
Unknown Alkane	18.567	1000 J
Benzo[e]pyrene	18.662	150 JN
Unknown Alkane	19.838	200 J
Unknown Alkene	19.905	140 J
Unknown	20.028	140 UJB
Unknown	20.360	180 J
Unknown	20.758	130 J
Unknown	21.299	120 J
Unknown	21.631	350 J
gamma.-Sitosterol	22.190	1800 JN
Unknown	22.314	160 J
Unknown	22.693	120 J

Pesticide/PCB Analysis for Soil Samples Alco Steel Service											
PCB/Pesticide	Sample Location and Number / Concentrations in µg/kg										
	SS01 Background	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11
Alpha-BHC	1.8 UJ	7.4 JP	7.8 JP	18 UJ	2.6 UJ	180 U	1.8 UJ	200 U	11 JP	1.8 UJ	1.8 U
Beta-BHC	1.8 UJ	12 JP	2.0 UJ	3300 UJX	2.6 UJ	3300 UX	1.8 UJ	3300 UX	2.0 UJ	1.8 UJ	1.8 U
Delta-BHC	1.8 UJ	1.9 UJ	40 JPD	150 JP	2.6 UJ	180 U	3.4 JP	200 U	43 JE	1.8 UJ	0.46 JP
Gamma-BHC (Lindane)	1.8 UJ	1.9 UJ	56 JPD	310 JPE	8.0 JP	200 P	1.8 UJ	300 P	2.0 UJ	1.8 UJ	1.8 U
Heptachlor	1.8 UJ	28 J	2.0 UJ	3300 UJX	2.6 UJ	3300 UX	1.8 UJ	3300 UX	2.0 UJ	3.6 JP	1.8 P
Aldrin	1.8 UJ	1.9 UJ	310 JPD	18 UJ	2.6 UJ	180 U	1.8 UJ	200 U	2.0 UJ	1.8 UJ	1.8 U
Heptachlor Epoxide	1.8 UJ	23 JP	2.0 UJ	18 UJ	2.6 UJ	180 U	9.5 JP	200 U	15 JPD	1.8 UJ	1.8 U
Endosulfan I	1.8 UJ	1.9 UJ	2.0 UJ	18 UJ	2.6 UJ	180 U	1.8 UJ	200 U	2.0 UJ	1.8 UJ	1.8 U
Dieldrin	3.5 UJ	31 JP	230 JPD	3300 UJX	5.1 UJ	350 U	22 JP	390 U	3.9 UJ	5.2 P	3.5 U
4,4'-DDE	110 JD	42 JP	210 JPD	3300 UJX	200 JD	3300 UX	23 J	3300 UX	16 JPD	7.6 J	3.6 P
Endrin	7.7 J	44 JP	69 JPD	230 JP	5.1 UJ	3300 UX	3.4 UJ	390 U	3.9 UJ	3.6 UJ	9.0
Endosulfan II	3.5 UJ	28 JP	110 JPD	35 UJ	51 UJ	350 U	42 JP	390 U	3.9 UJ	12 JP	10 P
4,4'-DDD	4.3 JP	17 JP	48 JPD	3300 UJX	95 JPD	3300 UX	3.4 UJ	3300 UX	3.9 UJ	5.5 P	3.5 U
Endosulfan Sulfate	10 JP	12 JP	110 JPD	35 UJ	69 JP	350 U	33 JP	390 U	24 JP	8.1 JP	8.5 P
4,4'-DDT	67 J	64 JPD	170 JPD	3300 UJX	3300 UJX	3300 UX	59 JP	3300 UX	3.9 UJ	16 JP	27 P
Methoxychlor	18 UJ	35 JP	20 UJ	180 UJ	26 UJ	1800 U	18 UJ	2000 U	20 UJ	18 UJ	18 U
Endrin Ketone	7.1 JP	9.7 PJ	3.8 UJ	160 JP	190 UJPD	270 JP	31 JP	390 U	22 JP	8.3 UJ	5.6 P
Endrin Aldehyde	13 JP	22 PJ	3300 UX	3300 UJX	5.1 UJ	3300 UX	68 JPD	3300 UX	39 UJ	21 UJ	17 P
Alpha-Chlordane	1.8 UJ	1.9 UJ	2.0 UJ	18 UJ	2.6 UJ	180 U	1.8 UJ	200 U	2.0 UJ	1.8 UJ	1.8 U
Gamma-Chlordane	1.8 UJ	1.9 UJ	2.0 UJ	120 JP	2.6 UJ	310 P	12 JP	3300 UX	2.0 UJ	1.8 UJ	2.3 P
Toxaphene	180 UJ	190 UJ	200 UJ	1800 UJ	260 UJ	18000 U	180 UJ	20000 U	200 UJ	180 UJ	180 U
Aroclor-1016	35 UJ	37 UJ	38 UJ	350 UJ	51 UJ	3500 U	34 UJ	3900 U	39 UJ	36 UJ	35 U
Aroclor-1221	72 UJ	74 UJ	78 UJ	710 UJ	100 UJ	7100 U	70 UJ	7900 U	79 UJ	73 UJ	71 U
Aroclor-1232	35 UJ	37 UJ	38 UJ	350 UJ	51 UJ	3500 U	34 UJ	3900 U	39 UJ	36 UJ	35 U
Aroclor-1242	35 UJ	37 UJ	38 UJ	350 UJ	51 UJ	3500 U	34 UJ	3900 U	39 UJ	36 UJ	35 U
Aroclor-1248	35 UJ	37 UJ	6000 JCE	22000 JCE	51 UJ	31000 C	34 UJ	3900 U	39 UJ	36 UJ	35 U
Aroclor-1254	35 UJ	37 UJ	38 UJ	350 UJ	5600 JPCE	160000 CE	34 UJ	3900 U	39 UJ	36 UJ	240
Aroclor-1260	35 UJ	1200 JCE	2600 JPCE	350 UJ	9900 UJX	48000 C	1100 JCE	450000 CE	9900 UJX	36 UJ	35 U

X - Surrogate samples were diluted to bring recoveries within Q.C. limits.

Inorganic Analysis for Surface Soil Samples
Alco Steel Service

Metals and Cyanide	Sample Locations and Number Concentrations in mg/kg										
	SS01 Background	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11
Aluminum	11100	7160	16300	8790	11800	5800	3410	9150	6210	3120	10200
Antimony	5.6 RUN	5.7 RUN	9.5 JBN	21.6 JN	20.4 JBN	37.7 JN	13.6 JN	21.5 JN	12.9 JBN	8.4 JBN	9.5 JBN
Arsenic	16.0 JNS*	13.0 JNS*	17.4 JBN*	20.8 JNS*	31.5 JNS*	17.3 JNS*	9.4 JBN*	37.3 JN*	27.2 JN*	16.6 JNS*	4.2 JNS*
Barium	135	141	1110	285	643	659	224	1470	144	29.4 B	125
Beryllium	1.1 B	0.40 B	0.60 B	0.58 B	1.1 B	0.51 B	0.35 B	0.67 B	1.8	0.26 B	0.59 B
Cadmium	2.2 *	3.8 *	14.2 *	11.9 *	32.6 *	57.0 *	4.5 *	32.5 *	6.6 *	0.83 U*	0.88 U*
Calcium	26800	81800	33000	78700	60500	117000	101000	43300	32200	102000	30300
Chromium	17.2	558	266	551	236	117	64.2	280	102	9.2	17.5
Cobalt	9.1 B	17.0	67.2	27.8	34.8	31.8	11.2	42.1	16.8	7.0 B	6.8 B
Copper	35.3	203	1940	2460	6890	8020	404	1660	209	49.2	43.1
Iron	25300	93400	283000	193000	91000	128000	39300	185000	85700	28900	22400
Lead	128	241	692	4080	3540	4170	765	1990	336	58.4	129
Magnesium	13800	34200	11300	28900	32600	37600	60100	24900	15600	63000	16600
Manganese	1310	3840	1620	11900	1960	925	632	1050	749	523	483
Mercury	0.35	0.91	8.1	8.4	7.8	14.2	0.93	4.7	0.42	0.17	0.11 U
Nickel	23.9	87.4	247	191	217	437	43.3	245	139	19.8	15.4
Potassium	1860	875 B	1060 B	662 B	1790 B	530 B	743 B	1270	881 B	678 B	1820
Selenium	0.86 JB	0.33 JBW	80.5 S	2.1 S	10.2 S	3.9 J+	0.47 JBW	2.1 S	0.92 B	0.24 JBW	0.28 B
Silver	1.3 B	4.4	12.1	9.7	8.1	9.1	2.5	9.7	3.9	1.2 B	0.81 U
Sodium	71.7 JB	196 JB	1450	338 JB	316 JB	214 JB	142 JB	298 JB	243 B	199 JB	223 JB
Thallium	0.28 B	0.29 JBW	9.7 JBW	1.9 U	0.44 JBW	1.9 U	0.30 B	2.1 UJW	0.38 JBW	0.43 JBW	0.20 UJW
Vanadium	26.2	57.2	33.8	142	39.0	8.6 B	12.9	29.7	33.3	8.1 B	22.8
Zinc	199	546	2930	1610	4920	3240	957	5070	1090	307	149
Cyanide	0.55 U	0.55 U	10	2.6	4.7	3.6	1.2	4.4	1.1	0.53 U	0.56 U

s: esi2/alco/data/soilmet + alco disk

Dioxin and Furan (PCDD/PCDF) Analysis for Soil Samples Alco Steel Service											
Dioxin/ Furans	Sample Location and Number Concentrations in ug/kg										
	SS01 Background	SS02	SS03	SS04	SS05	SS06	SS07	SS08	SS09	SS10	SS11
2378-TCDD	0.012 U	0.01 U	0.0071 U	0.0093 U	0.0037 U	0.0055 U	0.0073 U	0.37 U	0.024 U	0.013 U	0.0036 U
2378-TCDF	0.0073 U	0.0233 U	0.0736 J	0.247 J	0.431 J	0.699 J	0.113 J	0.867 X	0.0214 J	0.008 U	0.0099 X
12378-PeCDF	0.011 U	0.012 U	0.014 U	0.193 UJB	0.176 UJB	0.167 UJB	0.0594 UJB	0.794 UJB	0.03 U	0.012 U	0.0057 U
12378-PeCDD	0.02 U	0.018 U	0.012 U	0.016 U	0.0276 X	0.0094 U	0.013 U	0.88 U	0.041 U	0.022 U	0.006 U
23478-PeCDF	0.110 U	0.012 U	0.013 U	0.126 UJB	0.224 UJB	0.256 UJB	0.0633 UJB	0.47 U	0.03 U	0.012 U	0.0055 U
123478-HxCDF	0.013 U	0.04 X	0.122 UJB	0.731 UJB	1.3 UJB	0.804 UJB	0.302 UJB	8.5 B	0.0844 X	0.02 U	0.00897 X
12678-HxCDF	0.008 U	0.012 U	0.0324 UJB	0.136 UJB	0.268 UJB	0.177 X	0.064 UJB	1.21 X	0.047 U	0.013 U	0.0055 U
123478-HxCDD	0.022 U	0.032 U	0.0653 J	0.0629 X	0.0667 J	0.11 U	0.049 X	1.22 J	0.116 X	0.032 U	0.013 U
123678-HxCDD	0.024 U	0.036 U	0.039 U	0.056 U	0.287 UJB	0.127 UJB	0.053 U	3.51 X	0.12 U	0.036 U	0.016 U
123789-HxCDD	0.018 U	0.027 U	0.029 U	0.042 U	0.185 X	0.087 U	0.047 UJB	3.71 B	0.092 U	0.026 U	0.011 U
234678-HxCDF	0.011 U	0.017 U	0.0688 X	0.204 X	0.536 X	0.239 X	0.122 X	1.3 UJB	0.065 U	0.017 U	0.0141 X
123789-HxCDF	0.012 U	0.017 U	0.02 U	0.028 U	0.0752 X	0.056 U	0.028 U	0.846 X	0.068 U	0.018 U	0.0076 U
1234678-HpCDF	0.145 X	0.0618 J	0.302 J	0.898 J	2.59	0.827 J	0.477 J	5.4	0.171 J	0.0527 X	0.0791 J
1234678-HpCDD	0.13 UJB	0.591 UJB	1.05 UJB	1.34 UJB	5.87 B	1.85 UJB	0.834 UJB	16 EJB	1.93 UJB	0.117 UJB	0.106 UJB
1234789-HpCDF	0.017 U	0.026 U	0.0514 X	0.26 X	0.329 J	0.151 J	0.08 X	3.27	0.1 U	0.027 U	0.011 U
OCDD	0.734 J	4.23 J	9.01	8.73	49.80	10.6	6.86	797 EJ	14.3	1.19 J	0.768 J
OCDF	0.118 UJB	0.104 UJB	0.491 UJB	1.48 UJB	4.12 UJB	0.801 UJB	0.641 UJB	15.3 B	0.788 UJB	0.0925 UJB	0.0844 UJB

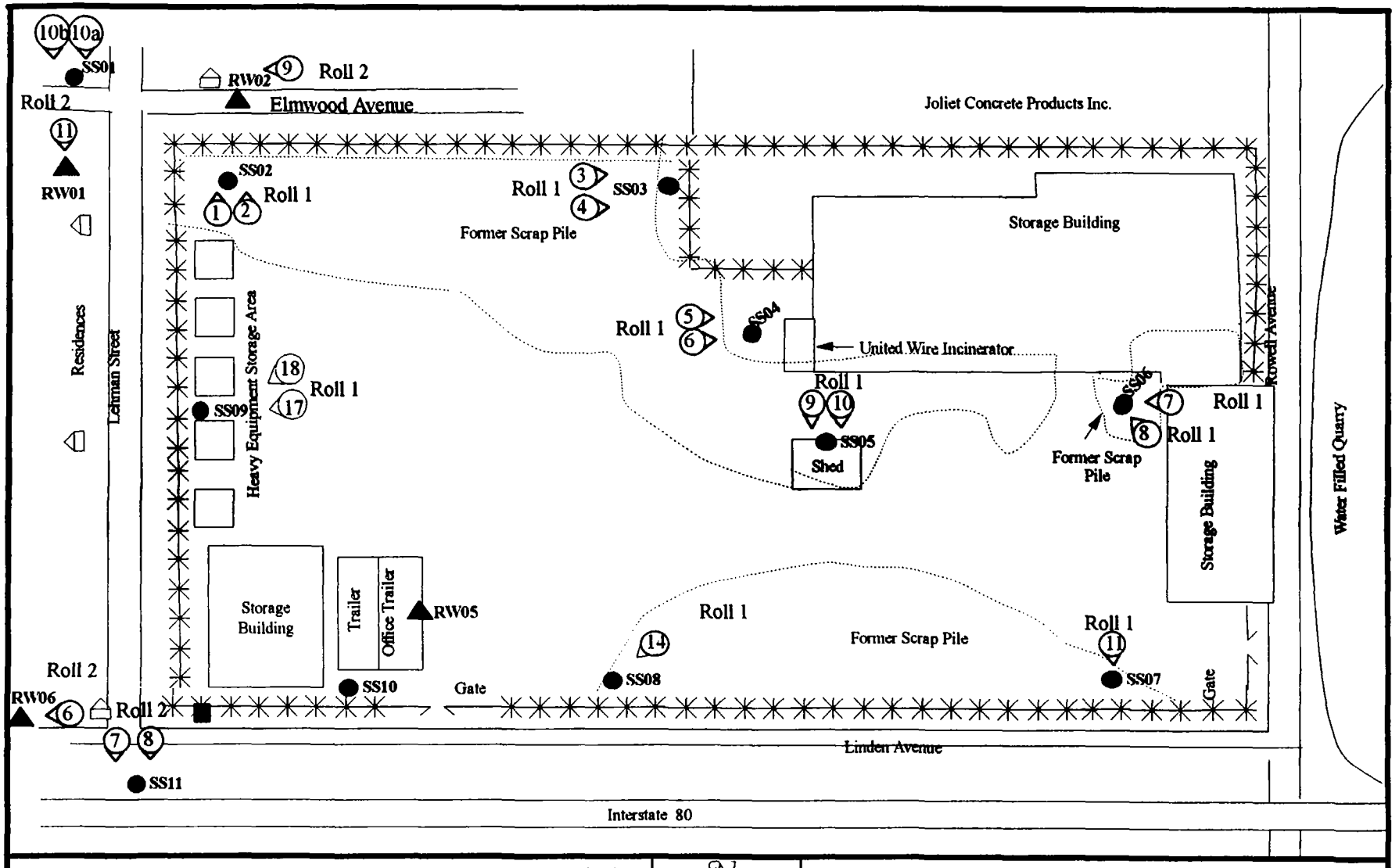
7128\122\soildiox

X - Ion ratios were outside Q.C. limits.

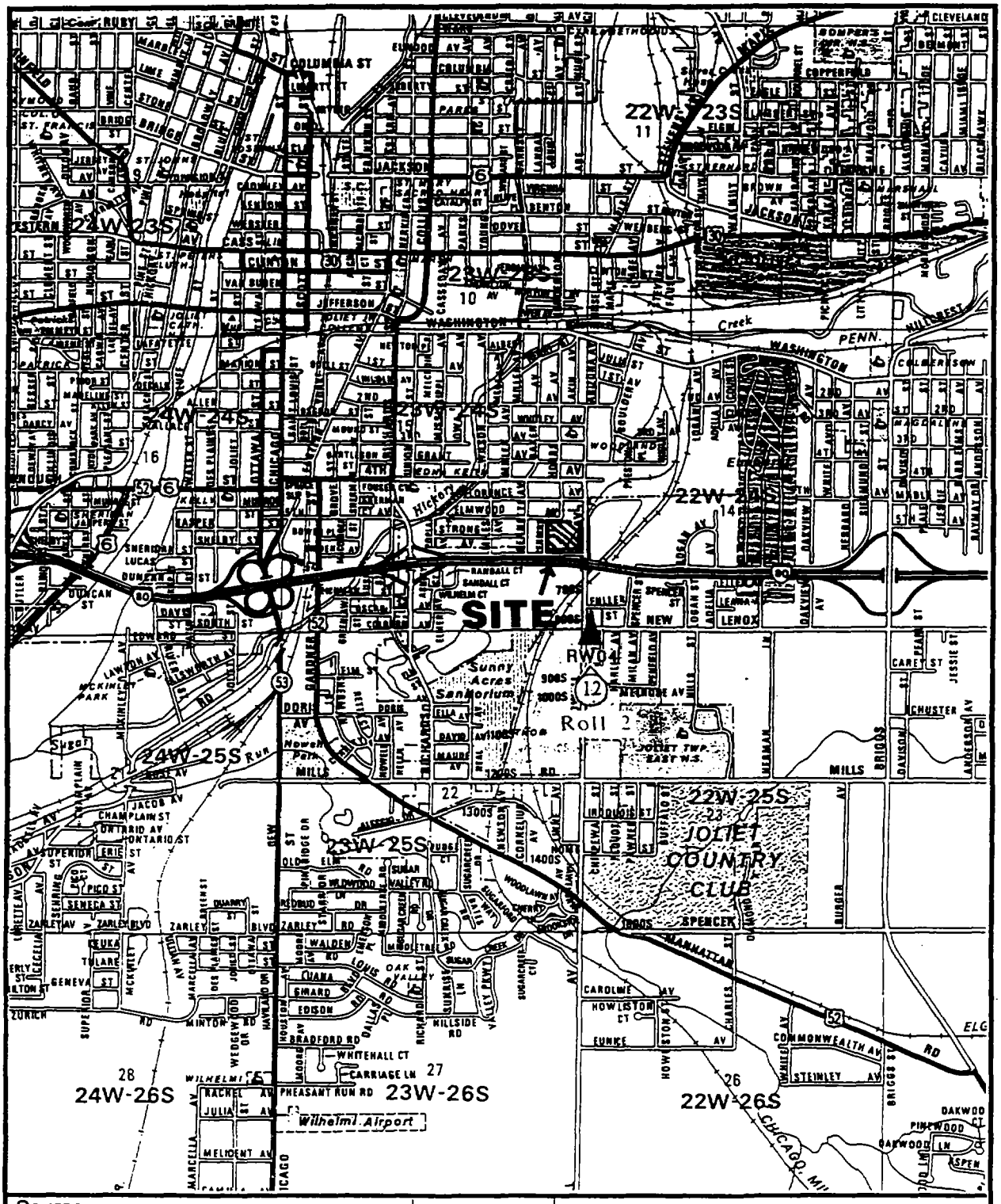
Appendix D

Alco Steel Service

Site Photographs



FRE0373
7.12.94



Source:
Joliet-North Will County Map
Rand McNally, 1994

Scale: 1 inch = 1/2 mile

▲ Residential Well (RW) Sample

(12) Photo Location, Number, and Direction

N

Figure D-2
Offsite Photo Location Map

Alco Steel Service
Joliet, Illinois

Name: FRE 0371

Date: 04/28/94

Date: 9/21/94

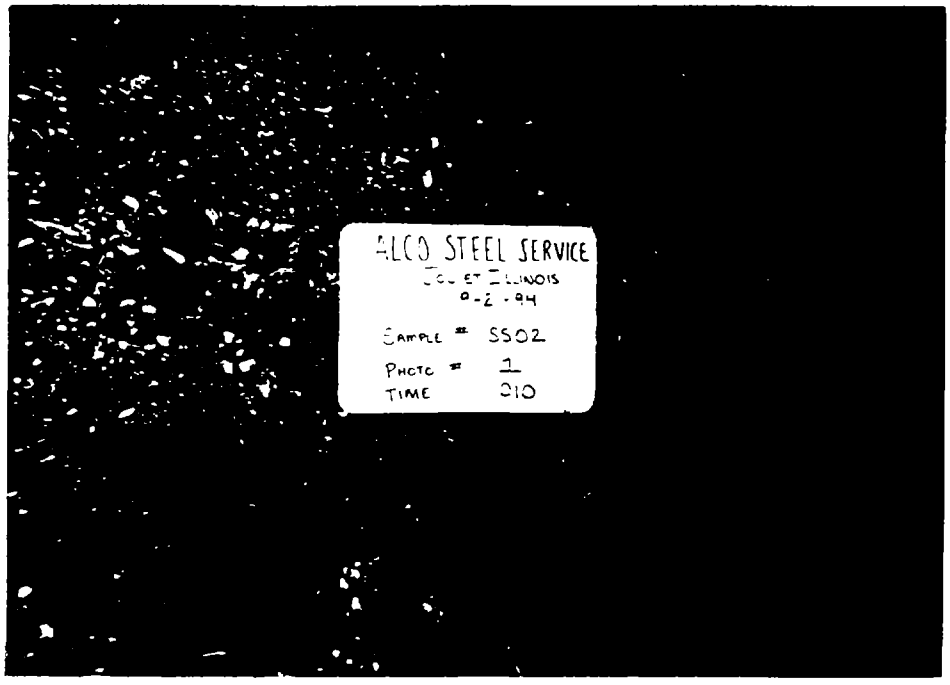
Time: 1015

Roll Number: 1

Photo Number: 1

Direction of Photo: North

Description: Close up of soil sample location SS02.



Date: 9/21/94

Time: 1016

Roll Number: 1

Photo Number: 2

Direction of Photo: North

Description: Overview of soil sample location SS02.

Date: 9/21/94

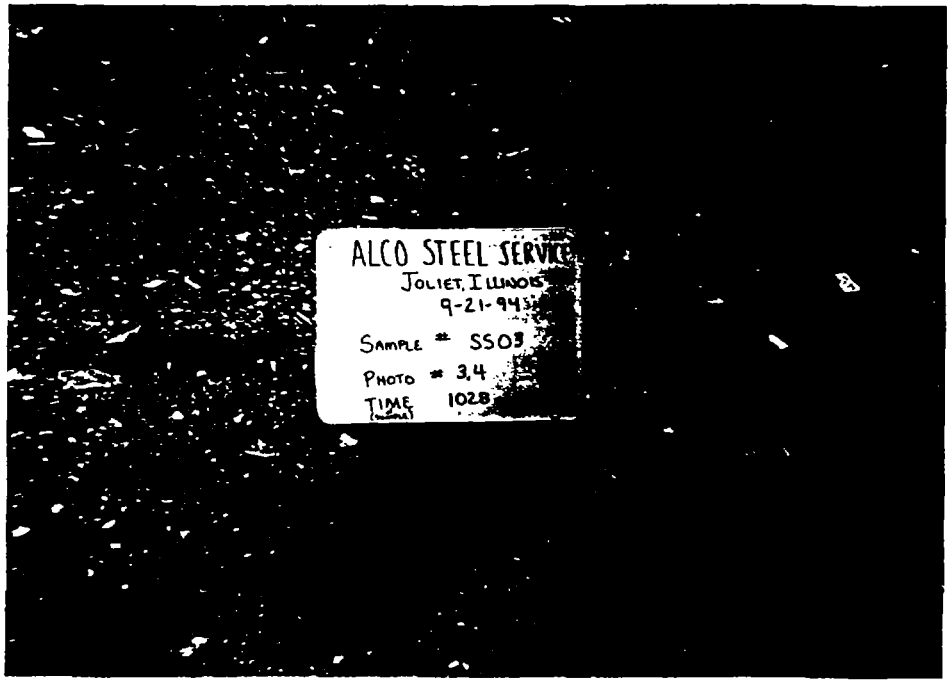
Time: 1035

Roll Number: 1

Photo Number: 3

Direction of Photo: East

Description: Close up of soil sample location SS03.



Date: 9/21/94

Time: 1036

Roll Number: 1

Photo Number: 4

Direction of Photo: East

Description: Overview of soil sample location SS03. Storage building in background.

Date: 9/21/94

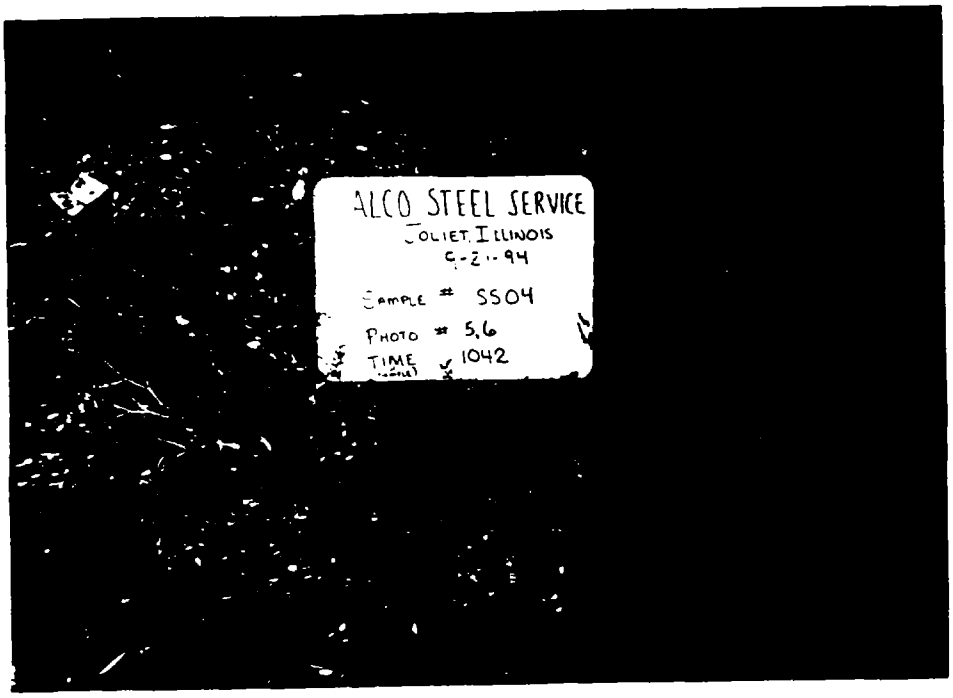
Time: 1045

Roll Number: 1

Photo Number: 5

Direction of Photo: East

Description: Close up of soil sample location SS04.



Date: 9/21/94

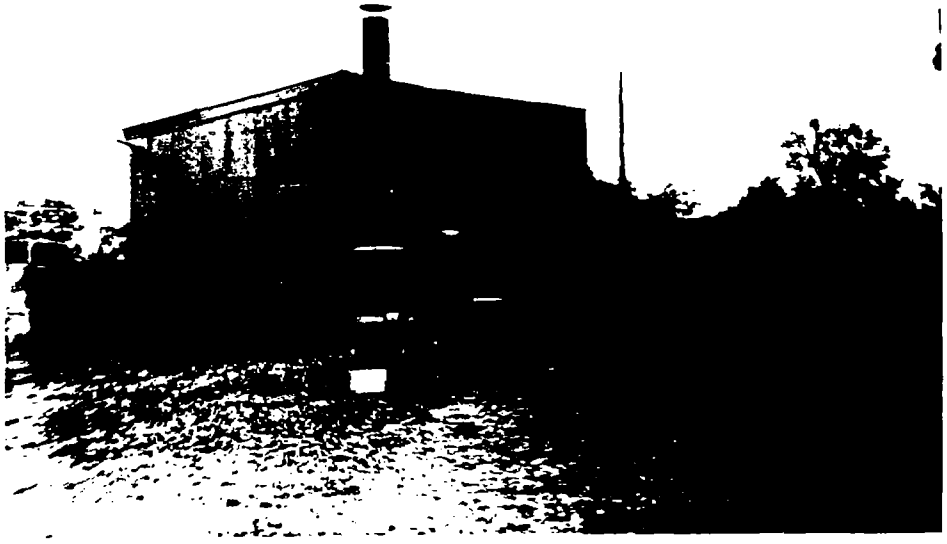
Time: 1046

Roll Number: 1

Photo Number: 6

Direction of Photo: East

Description: Overview of soil sample location SS04. Incinerator in background.



Date: 9/21/94

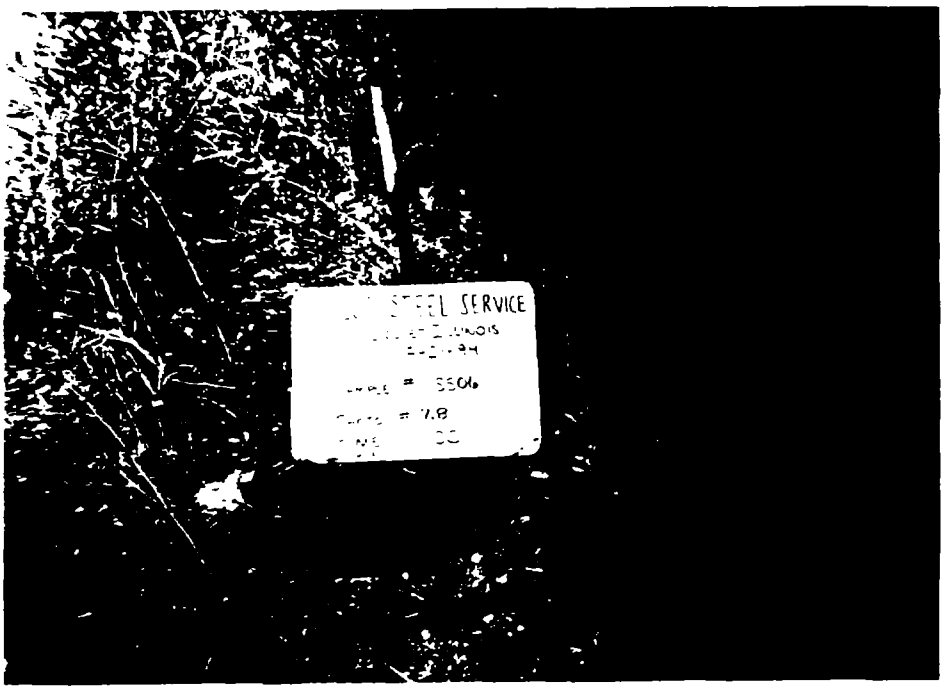
Time: 1105

Roll Number: 1

Photo Number: 7

Direction of Photo: West

Description: Close up of soil sample location SS06.



Date: 9/21/94

Time: 1106

Roll Number: 1

Photo Number: 8

Direction of Photo: Northwest

Description: Overview of soil sample location SS06. Storage building in background.

Date: 9/21/94

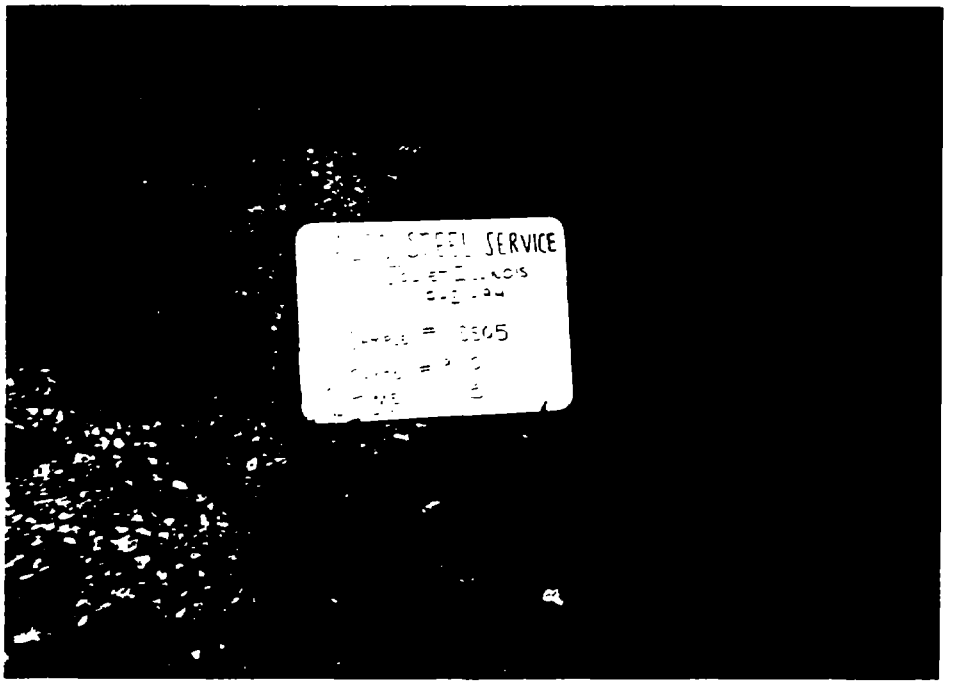
Time: 1120

Roll Number: 1

Photo Number: 9

Direction of Photo: South

Description: Close up view of soil sample location SS05.



Date: 9/21/94

Time: 1121

Roll Number: 1

Photo Number: 10

Direction of Photo: South

Description: Overview of soil sample location SS05. Shed in background.

Date: 9/21/94

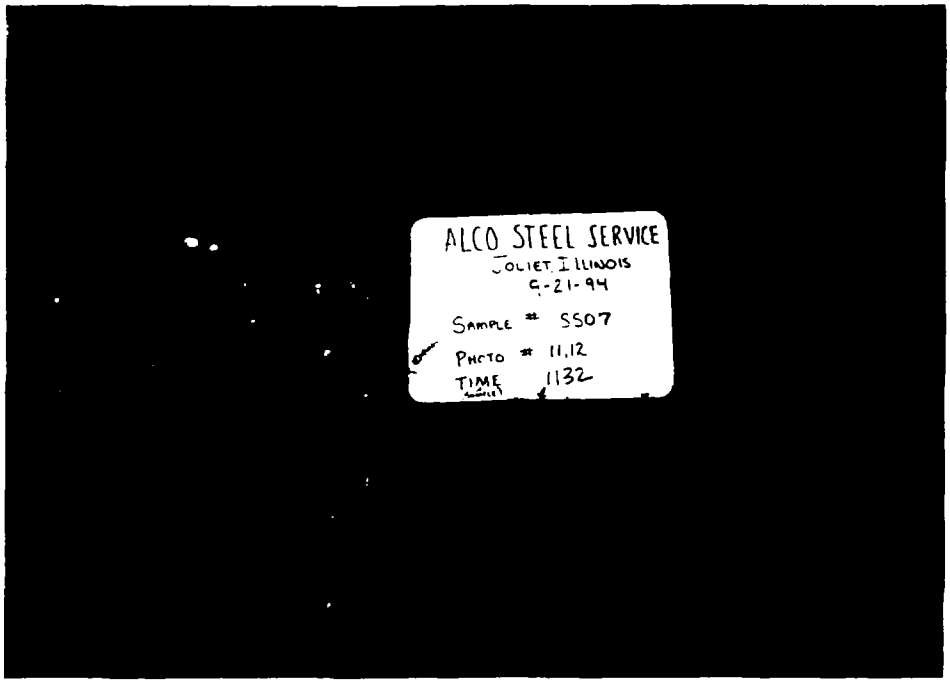
Time: 1137

Roll Number: 1

Photo Number: 11

Direction of Photo: South

Description: Close up of soil sample location SS07.



Date: 9/21/94

Time: 1156

Roll Number: 1

Photo Number: 14

Direction of Photo: Southwest

Description: Overview of soil sample location SS08.

Date: 9/21/94

Time: 1231

Roll Number: 1

Photo Number: 17

Direction of Photo: West

Description: Close up of soil sample location SS09. Sample number on board mislabeled.

Date: 9/21/94

Time: 1232

Roll Number: 1

Photo Number: 18

Direction of Photo: Southwest

Description: Overview of soil sample location SS09. Residences in background.

Date: 9/21/94

Time: 1505

Roll Number: 2

Photo Number: 6

Direction of Photo: West

Description: Close up of residential well sample location RW06.

Date: 9/21/94

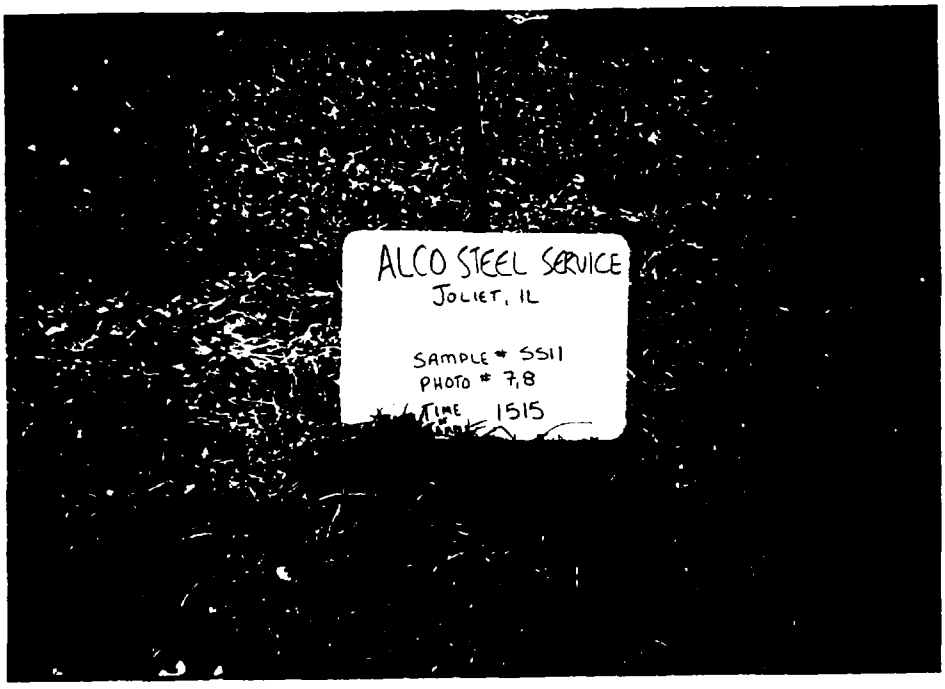
Time: 1525

Roll Number: 2

Photo Number: 7

Direction of Photo: South

Description: Close up of soil sample location SS11.



Date: 9/21/94

Time: 1525

Roll Number: 2

Photo Number: 8

Direction of Photo: South

Description: Overview of soil sample location SS11.

Date: 9/21/94

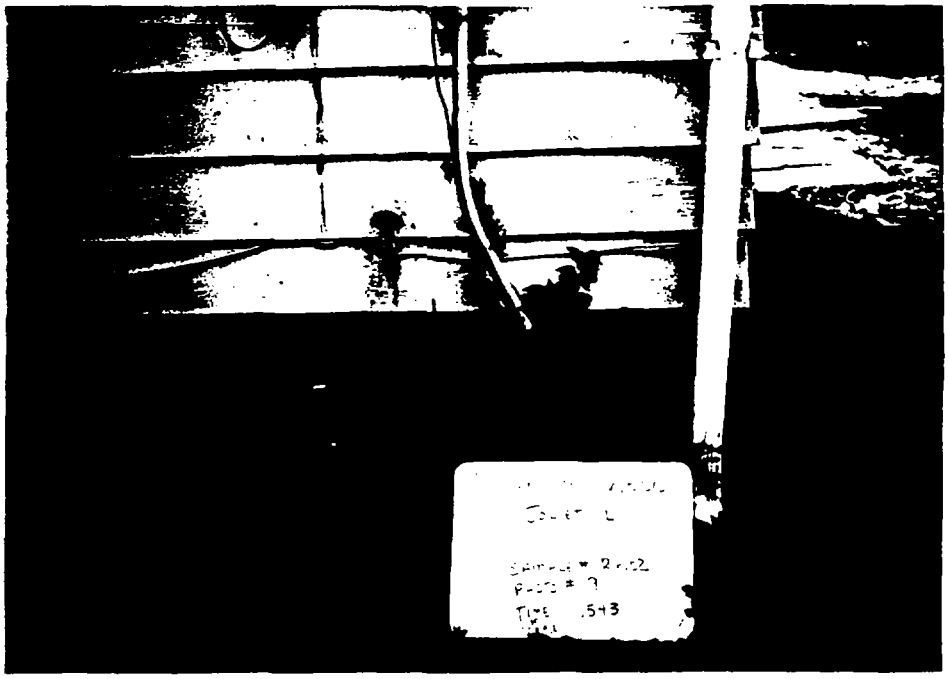
Time: 1543

Roll Number: 2

Photo Number: 9

Direction of Photo: West

Description: Close up of residential well sample location RW02.



Date: 9/21/94

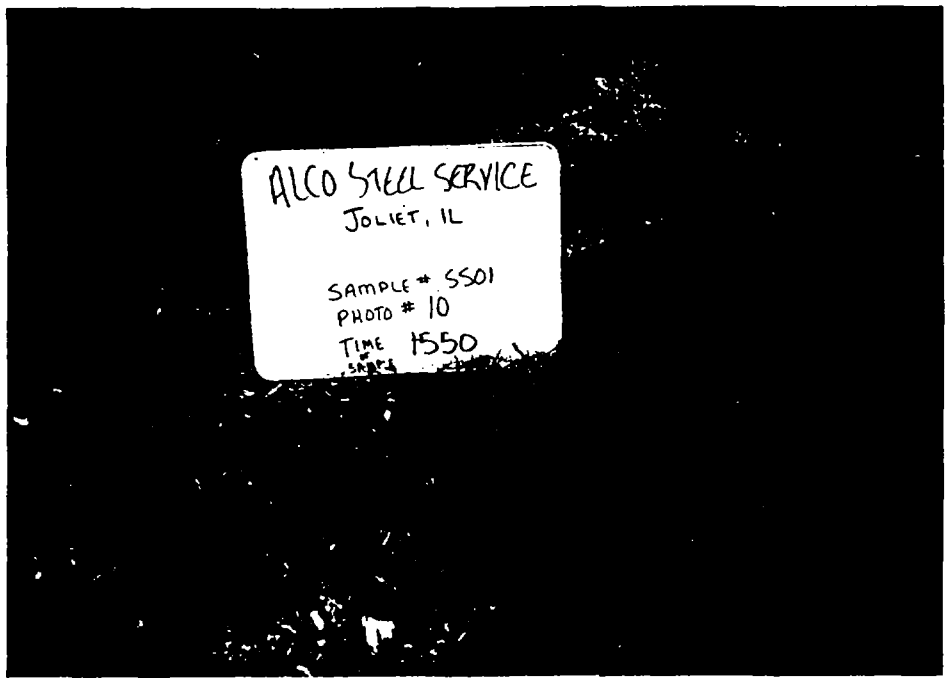
Time: 1550

Roll Number: 2

Photo Number: 10a

Direction of Photo: South

Description: Close up of background soil sample location SS01.



Date: 9/21/94

Time: 1551

Roll Number: 2

Photo Number: 10b

Direction of Photo: South

Description: Overview of background soil sample location SS01.

Date: 9/21/94

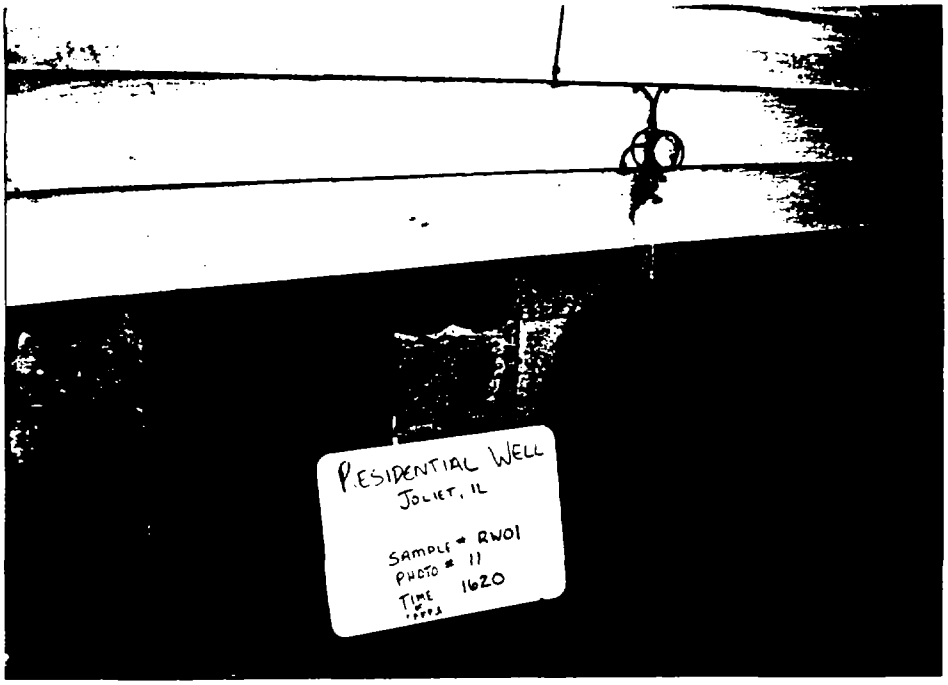
Time: 1629

Roll Number: 2

Photo Number: 11

Direction of Photo: South

Description: Close up of residential well sample location RW01.



Date: 9/21/94

Time: 1655

Roll Number: 2

Photo Number: 12

Direction of Photo: North

Description: Close up of residential well sample location RW04.